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THE TREATMENT OF ACUTE CORONARY THROMBOSIS

SAMUEL A. LEVINE, M.D.

BOSTON

There is hardly another condition in clinical medicine in which events occur more suddenly and in which the state of the patient may change with more dramatic rapidity than in acute coronary thrombosis. This makes it extremely difficult to appraise the value of any therapeutic procedures in this condition. The principles that underlie various aspects of treatment to be taken up in this discussion are based on both theoretical and empirical considerations. It would be foolhardy to assume that the present treatment is the best available. Much more experience will be necessary, one method being compared with another, before a final verdict can be formulated. In the meantime there are some conditions which are a matter of knowledge and others which are a matter of opinion based on the underlying pathologic physiology and gross anatomic changes, which can be a guide in a proper conception of therapeusis.

Throughout the early hours and days of this acute illness, the patient should be spared any unnecessary movements or exertion, or too frequent examinations on the part of the attending physician. In some cases it is wise to avoid undressing the patient or moving him from one place to another during these critical hours. At the onset of an attack the cardinal symptom for which relief should be afforded, if possible, is the agonizing pain in the chest.[1] Although in some instances pain is not prominent and may even be absent or replaced by severe dyspnea, in general the liberal administration of morphine will be of paramount importance. This will have to be given subcutaneously and in the average case the initial dose should be 15 mg., or one-fourth grain. It will often be necessary to repeat this in a short while, sometimes as soon as fifteen or thirty minutes. At times it will be necessary to give as much as a whole grain in an hour or two, because the pain is so violent. In other cases after the first injection relief may be obtained. It will be desirable not only to make the pain disappear but also to afford the patient some sleep, if possible. After the pain has subsided, therefore sedatives should be used to insure sleep.

Many of these patients previously had attacks of angina pectoris for which they learned to take glyceryl trinitrate pills under the tongue. They often, therefore, take one or more glyceryl trinitrate pills at the onset of an atack of coronary thrombosis, hoping to get the same relief that they formally obtained during the attacks of angina. It would be better if they did not. Certainly it is unwise for the physician to give glyceryl trinitrate at this time. Some recent work carried on at the Boston Dispensary by Prodger and Ayman [2] indicates that glyceryl trintrate may be harmful under such circumstances. It is obvious that the marked fall in blood pressure that accompanies the administration of glyceryl trinitrate may occasionally tend to bring on an attack of coronary thrombosis or, if the attack has already started, may aggravate it. One should, therefore, avoid glyceryl trinitrate entirely during the acute stages of this disease.

At times, immediately following the onset of an attack, there may be extreme collapse and unconsciousness. Many patients die instantly. If they survive long enough in this condition to be seen by a physician, epinephrine may be used subcutaneously. I have had very little experience with this phase of the problem, as I generally have seen these cases an hour or so later, when the original emergency had already passed. The first physician in such instances was able to revive the patient by the use of epinephrine and witness the return of consciousness. Very likely, under these circumstances, unconsciousness was due to the marked fall in blood pressure or to some form of heart block. In either case, epinephrine as a temporary measure can be regarded as a reasonable procedure.

Apart from the use of morphine, many cases will require very little else in the way of medication. The patient should be made as comfortable as possible and should be nursed with meticulous care. With an acute attack of coronary thrombosis there is frequently a prominent element of shock. The body should, therefore, be kept warm, and fluids should be given freely. The latter point is doubly important because there is often a great deal of water loss through perspiration; in fact, the diet for the first day or two should consist mainly of fluids. It is well to give sweet drinks freely, such as orange juice or lemonade, and also milk. It has recently been advocated by Marvin of New Haven to give 50 per cent dextrose solution intravenously. This he advises in doses of from 50 to 100 cc., daily, especially when there is marked dyspnea. He has reported some astounding results from this therapy. Although my experience with this is not extensive, I believe it is worth further trial.

In any circulatory problem, the question of digitalis therapy always arises. Some years ago I suggested that digitalis is contraindicated as a routine measure in the

Read before the California State Medical Society, May 3, 1932.

1. I have been informed by Dr. Charles L. Brown, Ann Arbor, Mich., that he obtained prompt relief of pain in a case of coronary thrombosis by injecting 0.25 Gm. of metaphyllin intravenously.

2. Prodger, S. H., and Ayman, David: Some Harmful Effects of Nitroglycerin, Especially in Coronary Thrombosis, Am. J. M. Sc. **184**: 480 (Oct.) 1932.

treatment of acute coronary thrombosis. Although there is some difference of opinion concerning this question, and one can construct theoretical arguments for and against its use, the final decision will come only from a statistical analysis of cases treated with and without digitalis. Such a comparative study, properly carried out, is not as yet available. Recently some experimental work has been done [3] which indicates that in the presence of shock the output of the heart is diminished rather than increased by digitalis. It was also found that with a normal, regular heart, the output was diminished by digitalis.[4] Although such an effect of digitalis probably does not occur in patients with ordinary congestive heart failure, especially if persistent auricular fibrillation is present, in acute coronary thrombosis there is rarely any permanent auricular fibrillation, nor is the circulatory disturbance of the type commonly seen in congestive heart failure. Here there is rarely any peripheral edema, although there is moisture in the lungs. The circulation in some ways can be compared to that present in hemorrhage or surgical shock. Furthermore, one may maintain that if digitalis makes the heart contract more vigorously it would still be harmful in coronary thrombosis, because it would enhance the likelihood of rupture of the ventricle or of dislodging emboli from the mural thrombus, both of which complications are common. Notwithstanding these considerations, when more is known about this problem it may turn out that digitalis has a place in the treatment of isolated cases and is contraindicated in others. At present I would advise giving it only when there is peripheral pitting edema and persistent auricular fibrillation. These conditions are rare in the acute states but are not uncommon after the first few weeks.

When there is marked dyspnea, cyanosis, air hunger and Cheyne-Stokes breathing, the inhalation of oxygen may be of value.[5] There can be no doubt that the degree of cyanosis and the pulmonary ventilation can be thereby improved, but how much influence this will have on the ultimate outcome is still debatable. The oxygen may be given with the use of an ordinary funnel or a nasal catheter, but best of all by means of an oxygen tent. It is also customary to use caffeine sodiobenzoate in doses of 0.5 Gm. intramuscularly for respiratory distress. Although I employ both of these measures for patients showing respiratory difficulty, their real value is still uncertain.

Nothing need be done about the oliguria or anuria which frequently is present during the first few days of the illness. With the increase in the strength of the circulation, the increase in fluid intake and the diminution in perspiration, the volume of urine will return to normal. As a result of large doses of morphine often employed and the weakness that occurs in this disease, there is apt to be atony of the bowels. The constipation may last two or three days, and I do not think it advisable to disturb the bowels during these days. There is rarely any discomfort from the lack of bowel movement, and eventually a normal vacuation will occur, or a mild cathartic or enema may be given. The reason for this point of view is that strain of all forms should be avoided during the first few days.

Many cases require no further medication than the original morphine. In twelve, twenty-four or forty-eight hours, pain will have disappeared and the patient may feel quite comfortable. He should be kept in bed for a period of from four to six weeks, depending on the severity of the illness, the economic status of the patient, and other factors that might influence the physician in prolonging or shortening the convalescence. There are other cases in which complications arise that require prompt attention. In fact, proper care of a patient with coronary thrombosis mainly revolves itself around the intelligent treatment of these complications. It is probably true that most patients will recover or die quite independently of the therapy. There is a small group, however, in which specific treatment is all important, in which an intelligent recognition of the situation and the proper treatment may make the difference between life and death. These are the complications I shall now discuss.

COMPLICATIONS

Glycosuria and diabetes are commonly associated with coronary thrombosis. Sometimes the amount of sugar in the urine is considerable and there may be slight to moderate acidosis. I would urge that insulin be entirely avoided during the acute stage of coronary thrombosis. Occasional immediate fatalities have occurred after the injection of insulin in such cases. In the past few years, attention has been called to the precipitation of anginal attacks following insulin. During the past year, Ernstene and Altschule [6] have shown that following the injection of ordinary doses of insulin there is an increase in the work of the heart of about 25 per cent, for an hour or two. It is a good deal like a temporary hyperthyroidism. I have seen an instance in which insulin was given against my wishes, and death occurred suddenly one hour later. The physician thought the patient died of insulin shock. Postmortem examination, however, showed a rupture of the left ventricle through the area of infarction. Generally I would recommend that the glycosuria be entirely neglected. In many cases it would disappear after the first several days, and in the others dietary regulation may be advisable after the first week or two, but in no case should insulin be given at least for a month or two.

The care of a patient with coronary thrombosis who also has syphilis, or at least shows a positive Wassermann reaction, needs special mention. I advise that such a patient should not receive any intravenous antisyphilitic treatment. He should be treated just as a nonsyphilitic patient would be the first week or so, and when convalescence is well established, potassium iodide may be given by mouth and preparations of mercury by mouth or intramuscularly. I have seen two instances of sudden fatality occurring a minute or so following the intravenous injection of arsenic compounds in cases of coronary artery disease. It is interesting that a syphilitic patient of mine, who had a violent attack of coronary thrombosis eight years ago, made an excellent recovery and has remained essentially well ever since, despite the fact that he always shows a positive Wassermann reaction and has never received any intravenous medication. He has taken, however, a great deal of mercury and potassium iodide by mouth. These

3. Blalock, Alfred: Mechanism and Treatment of Experimental Shock, Arch. Surg. **15**: 762 (Nov.) 1927.

4. Harrison, T. R., and Leonard, B. W.: The Effect of Digitalis on the Cardiac Output of Dogs and Its Bearing on the Action of the Drug in Heart Disease, J. Clin. Investigation **3**: 1 (Oct.) 1926. Burwell, C. S.; Neighbors, DeW., and Regen, E. M.: The Effect of Digitalis upon the Output of the Heart in Normal Man, ibid. **5**: 125 (Dec.) 1927.

5. Recently oxygen inhalation has been recommended for the relief of pain in coronary thrombosis.

6. Ernstene, A. C., and Altschule, M. D.: The Effect of Insulin Hypoglycemia on the Circulation, J. Clin. Investigation **10**: 521 (Aug.) 1931.

two complications, i. e., diabetes and syphilis, are instances in which the physician is warned not to do certain things which are commonly done in ordinary practice because coronary thrombosis serves as a contraindication. These are errors of commission. Possible errors of omission must now be considered.

A complication that requires prompt attention is the development of complete heart block with attacks of Adams-Stokes syncope. This complication, although rare, is quite serious. Here the heart will suddenly be found to be slow, from 25 to 40 a minute, and the patient may have spells of unconsciousness. If one has the opportunity of examining the heart during these attacks of syncope, it will be found that there is a complete asystole. No heart sounds can be heard for a variable length of time, ten seconds or more. Death may occur in any one of these attacks. Epinephrine is of great value in this condition and, I believe, may be life saving. This type of emergency can occur any time during the first few days and need not last very long, as new adjustments are quickly taking place in the coronary circulation. The following experience will illustrate the nature of the problem and the method of treatment:

About twelve hours after the onset of the attack, spells of unconsciousness suddenly developed and the heart rate was found to be about 30. The attacks of syncope recurred every few minutes, and it was noted that at these moments the heart would stop entirely for ten or fifteen seconds. These total arrests would be followed by a rate of 30. Epinephrine, 0.5 cc., was given subcutaneously, and for a period of about an hour and a half no more syncopal attacks occurred, although the heart rate remained slow. After this, attacks again appeared, and the patient was therefore given similar doses of epinephrine at approximately hour intervals. It was always noted that the tendency to syncope became manifest as the effect of the epinephrine wore off. Finally, after forty-eight hours, the condition cleared up; no more epinephrine was necessary, syncopal attacks did not recur, and shortly after this the normal heart rate was resumed. Should the Adams-Stokes attacks have continued, it would have been advisable to try ephedrine sulphate by mouth, which might have made the further use of epinephrine unnecessary, The patient recovered very satisfactorily and in two months was back at work. Epinephrine can be used, therefore, to control this specific complication of coronary thrombosis.

Paroxysmal ventricular tachycardia is another complication for which specific therapy will be necessary. This occurs in only about 5 per cent of the cases, but generally will not be controlled by the ordinary measures that are employed. It is first necessary to be able to recognize this disturbance and to distinguish it from other forms of paroxysmal rapid heart action. Paroxysmal auricular fibrillation occurs quite frequently in coronary thrombosis. It generally lasts only a few hours and can be easily recognized by the gross irregularity. In ventricular tachycardia, on the other hand, the heart also becomes rapid (from 160 to 200) suddenly, but the rhythm is not grossly irregular. In fact, it seems essentially regular. If one listens to the heart carefully, however, two important points will generally be detected. The rhythm, although for the most part regular, will occasionally show slight interruptions. The ear will be able to detect this quite readily and will distinguish ventricular from auricular tachycardia, which is absolutely regular. The second point is that the intensity and quality of the first heart sound will vary in different cycles. Finally, this form of paroxysmal tachycardia is entirely uninfluenced by carotid or ocular pressure, unlike auricular tachycardia or auricular flutter. With these criteria, it is generally a simple matter to diagnose the condition at the bedside without any special apparatus.

When the diagnosis of ventricular tachycardia is made, it will be necessary to use quinidine. Not only will digitalis fail to slow this rapid rate, but there is good clinical evidence to show that it will tend to make it more rapid or to prolong the attack. Occasionally such attacks end spontaneously, but they have a tendency to last for days. After the patient goes into collapse when a paroxysm of ventricular tachycardia develops, although he is apt to live on for hours or a few days, quinidine sulphate in almost all cases can restore the heart to a normal rhythm. The dose necessary to accomplish this varies a great deal. Some will respond to 0.3 Gm., or 5 grains; others will require more than 1 Gm., or 15 grains. It is best to start with a small dose and increase the dose every four hours until the desired result is obtained. It must be borne in mind that quinidine is a dangerous drug, but the complication now being considered is in itself critical, apart from the other aspects of coronary thrombosis. I therefore feel that it is advisable to use quinidine in this condition. One may expect to regularize the heart by this drug, but it will not necessarily prevent some of the other complications, such as rupture of the heart or peripheral emboli. It will merely control one complication (the tachycardia) which of itself might be disastrous if permitted to continue. I have had isolated instances in which I believe a moribund patient was enabled to recover satisfactorily by the use of quinidine when it seemed highly unlikely that recovery could have taken place otherwise.

Before leaving the question of quinidine, there is one more matter on which I wish to touch. There are certain patients who die suddenly and unexpectedly during the first two weeks following an attack of coronary thrombosis. Many of these show a rupture of the ventricle, but some do not. There are not many disturbances that can make the heart stop instantly. Death can occur instantly as a result of rupture of the heart or aorta. It may also occur instantly and unexpectedly in sudden heart block with a long attack of asystole. There is also a rare condition called standstill or inhibition of the auricles which might conceivably cause sudden death, if a similar disturbance took place in the ventricle. Finally, it has long been assumed that in coronary artery disease sudden death probably is frequently the result of ventricular fibrillation. There is a good deal of experimental evidence to support this view, and recently I saw some electrocardiograms that happened to be taken during a sudden fatal attack of angina, and they showed ventricular fibrillation. In addition, I have seen patients who, while feeling very well, died in an instant during the second week of a coronary attack, and the postmortem examination did not indicate any of the other possible causes of sudden death. In such cases, death was probably due to sudden ventricular fibrillation. Because of these experiences I have long since wondered whether the routine administration of quinidine sulphate during the first two weeks of coronary thrombosis might not be effective in diminishing the likelihood of ventricular fibrillation and sudden death. With this in mind, animal experiments were carried out during the past year in the Harvard University Medical School,[7] which showed that ventricular

7. Levine, H. D.: Effect of Quinidine Sulphate in Inhibiting Ventricular Fibrillation, Arch. Int. Med. 49: 808 (May) 1932.

fibrillation was produced with greater difficulty in quinidinized than in normal animals. Furthermore, the routine administration of 0.2 Gm. of quinidine, two or three times a day, for from ten to fourteen days, may actually prevent some cases of auricular fibrillation and ventricular tachycardia from occurring. The only precaution is to avoid quinidine when there is evidence of any form of heart block, for here, at least theoretically, it is contraindicated. For this reason I advise giving 0.2 Gm. of quinidine sulphate three times a day for the first two weeks after the onset of an attack in most cases.

As a rule, if complications are to arise they occur during the first week, and less frequently during the second week. Usually it may be said that if the patient is doing well at the end of two weeks, his progress will be favorable. However, I have seen an embolus cause a hemiplegia as late as four weeks after the onset of the attack. It is therefore wise to insist on bed care for about five or six weeks. During the latter part of this interval, it is the practice among some men to give a theobromine preparation or metaphyllin. This may be given in 0.1 Gm. doses, three times a day. In fact, it has recently been suggested to give from 0.1 to 0.2 Gm. of metaphyllin intravenously for the early pain of coronary thrombosis. It is difficult to know how much good this does, but it has a valid theoretical basis and can do no harm. When the period of bed rest is over, the patient is gradually allowed to be up in a chair for increasing lengths of time. One week should be spent in this process before he is up and about the entire day. A program should then be outlined for the gradual resumption of his duties. Many patients permanently need to diminish their physical and mental activities. It would be well if these patients developed the habit of taking a rest period of one hour after the noon meal. If they were previously overweight, the diet should have been regulated during the weeks they spent in bed, so that a considerable loss in weight had taken place. This loss should not be regained. They should be cautioned against excessive smoking, drinking and eating. They also should avoid sudden strains, such as running or heavy lifting. If it is possible for them to develop a philosophy of life which would prevent bursts of anger and other forms of emotion, it would be highly desirable. This, however, is more easily said than done. It must not be regarded from the foregoing that a patient who recovers from coronary thrombosis is to be treated as an invalid. Although some are permanently crippled, many return to their customary duties and carry on for years and years.

SUMMARY

This is an outline of the treatment of the acute attack of coronary thrombosis. In a word, the essential points are the early use of morphine, absolute rest in bed for weeks, the avoidance of certain procedures commonly employed, such as insulin and arsphenamine and the proper recognition and specific treatment of some of the complications. It is also suggested that the selective use of quinidine during the early part of the illness may help to prevent sudden death and thereby diminish the mortality. Finally, it must be emphasized that although many patients succumb, despite all one can do, there are others who not only recover but return to their customary duties and live for many years.

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PREVENTABLE INVALIDISM FOLLOWING CHILDBIRTH

JENNINGS C. LITZENBERG, M.D.
MINNEAPOLIS

The ultimate welfare of mothers cannot be secured by good care during pregnancy and labor alone. Postpartum oversight is quite as important. The objects of motherhood are not attained by bringing a healthy baby to a living mother; they are completed only when that mother is restored to perfect health. Postpartum care must continue until that end is accomplished, whether it takes two weeks, two months or two years. Thus only can invalidism be avoided. The puerperium is too generally considered at an end with the termination of the lying-in period. It should be thought of as consisting of three periods:

1. *The Immediate Puerperium.*—This is the lying-in period, ending when involution has progressed far enough to enable the patient to be up and about. Every patient should be told that it takes an additional four or six weeks for her pelvic organs to return to normal. She will then appreciate the necessity of following instructions to be careful.

2. *The Intermediate Puerperium.*—This is the period of completion of involution. The restoration of all tissues involved in child bearing to normal should be completed from six to eight weeks post partum, but, unfortunately, this is frequently not accomplished.

3. *The Remote Puerperium.*—The period of complete restoration to health ends only when all delayed normal processes and every complication of pregnancy and labor have been entirely eliminated.

Time will not permit a detailed consideration of all the valuable procedures necessary in postpartum care, so discussion must be limited to only a few of the more important and too frequently neglected causes of invalidism following childbirth.

While the puerperium is supposed to be occupied chiefly with normal processes, these are so frequently altered and there are so many abnormal inheritances from gestation and parturition that it is often quite pathologic.

ANEMIA

Anemia is a common cause of slow recovery after delivery. Its treatment post partum begins with prophylaxis at delivery, when the loss of blood must be limited to the smallest possible amount; more than 400 cc. is too much, and over 500 cc. is excessive. Because bleeding is normal after birth, one is too apt to think that even a considerable loss is unimportant. Measurement is the only way to be certain of the amount of bleeding. This can be done by any one, for it is not difficult. All but a small amount can be collected in a small basin. If you think that your patients are not losing too much blood, measure it—you may be surprised. Too much has been said about the ability of women to live following large losses of blood after delivery. We have been too content with saving the woman's life and not anxious enough about her health and the prevention of invalidism.

If bleeding is kept under 400 cc., the first postpartum step has been taken in conserving the mother's future health. The second step is examination of the blood after delivery to detect and treat an unsuspected

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anemia. Women may live after tremendous bleeding, but one with a low hemoglobin and red cell count is greatly handicapped in her restoration to perfect health and strength.

TOXEMIAS

One of the richest rewards of prenatal care has been the saving of mothers by early discovery and treatment of toxemias. An equally rich experience will reward him who follows all his toxic patients for a considerable time, to make sure that there is no remnant of damage to the kidney. This is especially true in those cases in which the disappearance of albumin, casts and hypertension and the return of renal function have been prolonged. Nearly always, when recovery is slow, and even when it has been rather rapid, albumin and casts often appear periodically, which will go undetected and an insidiously developing nephritis may be missed unless the urine of every woman who has had toxemia is examined frequently and long enough to give assurance that the kidneys have become normal. When recovery from toxemia is slow, the kidneys have been seriously damaged, are more likely to develop nephritis and will be less able to carry the extra load of another pregnancy or any other condition throwing a severe demand on the kidneys.

DISPLACEMENT OF THE UTERUS

In spite of the fact that some women with retroversions of the uterus have no untoward symptoms, they are sources of invalidism in many more. Various authorities place the incidence of retroversion after delivery at from 20 to 40 per cent. In one thousand of my cases the frequency was 25 per cent. Many of these may be prevented by exercises in bed during the immediate puerperium. Other patients may be cured by simply replacing the uterus at the end of the lying-in period, at which time, whether there has been a displacement or not, the patient should be instructed to take moderate physical exercise, to do the kangaroo walk and how to assume correctly the knee-chest posture. These, particularly the kangaroo walk, help to maintain the normal position of the uterus and not infrequently cause the retroverted puerperal uterus to return to the anterior position. Beck, when he introduced the "kangaroo walk," proved, by a large series, each alternate one of whom was given the exercise, that those using it had fewer retroversions. An examination should always be made from four to six weeks post partum. If, at this time, the retroversion persists in spite of its primary replacement and the physical exercises, the uterus should then be replaced and a carefully fitted pessary adjusted. In my series of one thousand consecutive deliveries, I found approximately one-fourth had retroversions at the end of the intermediate puerperium and that 90 per cent of these were cured by a properly fitted pessary. On the other hand, in a control series of gynecologic cases, not recently delivered, I failed to cure retroversions by the use of the pessary in 95 per cent, malposition recurring as soon as the pessary was removed. I also found that if the adjustment of the pessary was delayed even a short time beyond six weeks after delivery, the percentage of cures dropped rapidly until, at the end of three months post partum, failure was the rule.

NEUROSES

Many neuroses follow delivery, owing to a failure of the physician to appreciate that in the surroundings of modern civilization, child bearing is not always a normal process, often taxing a woman to the limit of her physical and nervous strength. Giving sufficient rest and time for recuperation of the general health, detection and treatment of anemia and attention to general and mental hygiene, until nervous stability is restored, will avoid neurasthenia and psychosis.

INFECTIONS

Pyelitis and Pyelonephritis.—Infections of the urinary tract are peculiarly frequent during pregnancy. Pus in the urine is always a danger signal. It should be eliminated promptly, for it possesses grave possibilities as a focus of infection and is particularly apt to result in chronic nephritis. Every case of infection of the urinary tract must be followed until every last trace of pus in the urine is removed, however long it may take. I have seen patients without any other evidence of infection in whom chronic nephritis developed and who died because pyelitis of pregnancy was neglected after subsidence of acute symptoms and the patient was not followed to complete elimination of the infection of the urinary tract.

Puerperal Infection.—It is not sufficient to treat puerperal infection only until fever, leukocytosis and localized evidence of the acute disease have disappeared, for frequently chronic pelvic and distant lesions are left which are dangerous to health and life. The acute infection, by extension into the immediate neighborhood of the uterus, frequently leaves chronic consequences from pelvic cellulitis, metritis, salpingitis or peritonitis, and the blood-borne germs attack distant organs, resulting in chronic arthritis, grave cardiac lesions and chronic nephritis.

Chronic Cervicitis.—Of the local pelvic lesions, the most common and persistent is chronic cervicitis, which, with its annoying leukorrhea, follows nearly every case of childbed fever and occurs also in an inordinate number in which there has been no sepsis. Cervicitis is not a trivial lesion, but is a focal infection of far-reaching possibilities. Furthermore, chronic inflammation of the cervix is a dangerous disease, for, by its long-continued irritation, it is potentially a precancerous condition. The foundation of many a cancer is laid at delivery by lacerations with their consequent easy infection and by failure to cure a chronic cervicitis. Therefore, every child-bearing woman should be treated until all evidence of cervicitis has entirely disappeared because: (1) an infected cervix is, with its attendant leukorrhea, an annoying disease; (2) it is a dangerous focus of infection, the same as the teeth or the tonsils, and (3) it is potentially a precancerous condition, for chronic irritation is the one etiologic factor in cancer about which there is general agreement. Therefore, one's first duty in preventing cancer of the cervix uteri is postpartum care to secure an uninfected, perfectly healed cervix by observation long enough to determine that the cervix heals spontaneously after delivery, and if it does not, to secure healing by local treatments, cauterization or repair of lacerations.

SUMMARY

The ultimate welfare of the parturient woman cannot be secured by good antepartum and intrapartum care alone, but requires equally good postpartum attention:

1. Meticulous care is necessary during the lying-in period, and careful examination is essential at the end of it to detect and correct any abnormalities.

2. Care consists of, also, prevention of hemorrhage at delivery and the discovery and treatment of anemia post partum.

3. Toxemias must be followed to the complete eradication of all conditions which may lead to chronic nephritis.

4. Displacements of the uterus must be corrected, for a large percentage can be cured.

5. All infections must be followed to complete cure and elimination of chronic sequelae as far as is possible.

6. Reexamination must be made at the end of the intermediate puerperium to discover recurrence or occurrence of abnormal conditions.

7. Observation must be continued until the mother is restored to perfect health, however long that may require.

8. If adequate postpartum care is not carried to its ultimate conclusion, the consequences may be grave anemia, general ill health, nephritis, permanent displacements of the uterus, grave cardiac lesions, neurosis, psychosis, chronic cervicitis, cancer and death.

THE MANAGEMENT OF NORMAL LABOR

ALFRED C. BECK, M.D.
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This paper is based on the assumption that labor is a physiologic function, and a keen appreciation of the adequacy of nature's mechanism in each of the stages has led me to cling to this view throughout most of my obstetric experience. At times I have been led astray by some new fad only to return with a stronger faith in the advantages of a natural delivery. It therefore is my conviction that a normal labor should be allowed to proceed along physiologic lines, that nothing should be done to interfere with the natural mechanism and that the attendant at all times should be sufficiently familiar with nature's efforts to enable him to assist her whenever it is possible.

FALSE LABOR

The management of labor should include the management of false labor. When the pains begin it is important to ascertain whether they are genuine or false.

True labor pains recur regularly and progressively increase in frequency and intensity. False pains are irregular and are accompanied by atypical contractions. The latter may be present from a few hours to several days before the onset of the former. They contribute little to the progress of labor and cause much useless suffering, which if ignored may result in mental and physical exhaustion before the onset of regular uterine contractions.

A correct diagnosis invariably leads to correct management. The patient is told truthfully that these are not the right kind of pains, that they frequently precede the right kind of pains but that it is impossible to predict when the right kind will begin. She is encouraged to continue her ordinary household duties and take enough nourishment to support her through the labor which is imminent. At night sufficient sedatives are given to put the patient and her uterus at rest. A hypodermic of morphine and scopolamine on the night before the onset of labor often is better than a most skilful forceps extraction after the patient is exhausted.

From the Department of Obstetrics and Gynecology of the Long Island College Hospital.
Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

FIRST STAGE

Soon after the onset of true labor, careful examination of the patient is made. By abdominal palpation the size of the fetus is estimated, the presence or absence of engagement is noted and the presentation and position are determined. Inability to outline the fetus as it is pictured in the textbooks often leads to abandonment of this valuable diagnostic aid. If those who have been disappointed by abdominal palpation will compare one side with the other and the upper pole with the lower, the relative characteristics of the fetal parts will be revealed, and from these a diagnosis may be made as actually as though the actual fetal outline were palpated (figs. 1 and 2).

The condition of the child is ascertained by auscultation of the fetal heart. As long as the membranes are intact no great change is ordinarily expected during the first stage. After the waters break, however, the possibility of fetal embarrassment is ever present and should lead to frequent search for alterations in the fetal heart tones.

As prenatal examination included pelvimetry, mensuration of the pelvis during labor is unnecessary unless the patient has not been seen previously.

By [redacted] or rectal examination, the condition of the cervix and membranes and the relation of the presenting part to the ischial spines are learned, and the previous diagnosis of presentation and position is verified. Vaginal examination increases the risk of puerperal infection. Its use, therefore, should be restricted as much as possible and always should be preceded by proper preparation of the vulva and the physician's hands. The risk of infection should lead every one to substitute rectal for vaginal examination whenever possible. Those who have found rectal touch to be unsatisfactory will acquire facility with this method if immediately after every vaginal examination they make a rectal examination and try to feel just what the vaginal revealed. Dilatation of the cervix should be determined in the same manner in each case, i. e., by circling the external os with the tip of one finger and estimating the diameter of the circle so traced.

If examination shows the beginning of labor to be normal, this fact is emphasized to the patient in an effort to allay her fears. She then invariably asks "When will the child be born," and the reply is always guarded. One may say that the passages are normal, that the child is lying in a favorable position and from these observations a satisfactory outcome may be anticipated, but that the time of its occurrence cannot be foretold because it is not known how readily the cervix will dilate or how strong her pains will be. Rash prognoses as to the duration of labor lead to loss of confidence in the attendant if proved to be incorrect. For this reason no good practitioner makes them.

If the patient can be induced to sit up or preferably walk about the room, the pains will be better tolerated and at the same time made more effective. Uterine contractions likewise are accelerated by the use of a warm enema.

During this phase of labor the taking of nourishment is encouraged. Frequent small feedings of carbohydrates serve to prevent fatigue in the second stage. While food often is repulsive, most patients will take it, if the physician insists.

When the pains recur at from five to seven minute intervals and the cervix is from 2 to 3 cm. in diameter, the patient is put to bed. If rest in bed has no effect on the character of the contractions ⅙ grain (11 mg.) of morphine and ½₀₀ grain (0.3 mg.) of scopolamine are given hypodermically. The administration of these

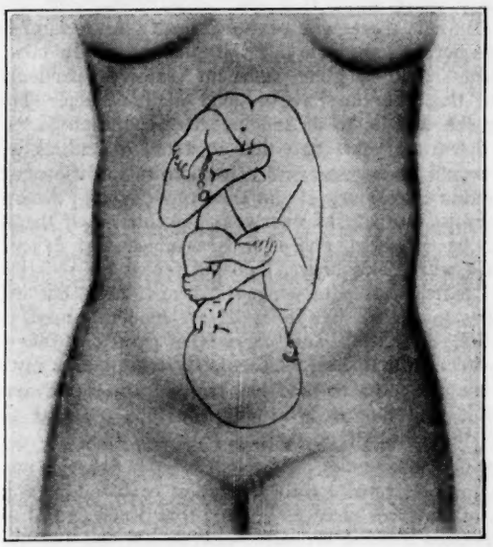

Fig. 1.—Left occipitoposterior position as outlined in most textbook illustrations. This outline seldom can be felt by abdominal palpation.

drugs at the proper time not only relieves suffering but unquestionably shortens labor by hastening cervical dilatation.

SECOND STAGE

As soon as the cervix is fully dilated, the membranes are ruptured and a careful examination is made to verify the previous findings and rule out prolapse of the cord. At this time all of the expulsive forces are stronger than they will be later and accordingly should be used to their fullest extent just as soon as the cervix is out of the way. It therefore is the duty of the attendant to take charge of the direction of these forces from the beginning of the second stage. Throughout each contraction the patient is shown how to use her pains until she voluntarily obtains the maximum effect from each labor pain.

The natural forces are augmented by the use of pullers and a snug abdominal binder. The aid furnished by the binder is passive and is of no value if the patient is too tired to use her voluntary efforts. It accordingly should be put on at the beginning of the second stage. In my experience, this routine measure has shortened the second stage almost 50 per cent. It has almost eliminated the need for pituitary extract before the child is born, and has reduced the incidence of forceps deliveries to 8 per cent in primiparas and well under 1 per cent in multiparas. Within a short time the presenting part begins to distend the perineum, and the caput may be seen in the vulvovaginal orifice. An anesthetic is now administered during each contraction, and the intense pain of the perineal stage is eliminated without destroying the bearing down efforts.

The fetal heart is listened to after each contraction. In the event of fetal embarrassment, the binder is removed. If improvement does not follow, the child is delivered immediately. Usually a lateral episiotomy is sufficient and forceps seldom are required.

Unless progress is too rapid, the binder is left in place until the vulvovaginal ring is from 6 to 7 cm. in diameter. It is then removed and the anesthesia is deepened with each contraction so that the dilatation may be gradual. If a tear is imminent or if as previously stated the child is in danger, a lateral episiotomy is done.

Lacerations are repaired under anesthesia immediately after the placenta is delivered if there is no danger of postpartum hemorrhage.

THIRD STAGE

The third stage may or may not be accompanied by progressively increasing bleeding. Usually hemorrhage is absent until a gush of blood indicates the separation of the placenta. In such circumstances the uterus is not touched until signs of separation appear. After the placenta has separated, it is forced out of the lower segment and vagina by making pressure over the fundus or by a bearing down effort on the part of the patient.

A relatively small proportion of cases show progressively increasing hemorrhage. In these the uterus is massaged and the amount of blood lost carefully observed. If separation of the placenta is delayed, or if the loss of blood becomes alarming, preparation is made for a manual removal of the placenta by sponging the vulva with an antiseptic and by the changing of gown and gloves. Before removing the placenta manually, however, an attempt is made to separate and express it by the Credé technic. Although the latter procedure usually is successful, one should prepare oneself for an aseptic manual removal before attempting the Credé maneuver, since its failure occasionally is followed by such an alarming hemorrhage that one may not have time to prepare for an aseptic manual removal.

CONCLUSIONS

Ample experience has shown that the foregoing routine procedures will give very satisfactory results.

While it does not insure an absolutely painless labor, it does eliminate the major portion of the mother's suffering.

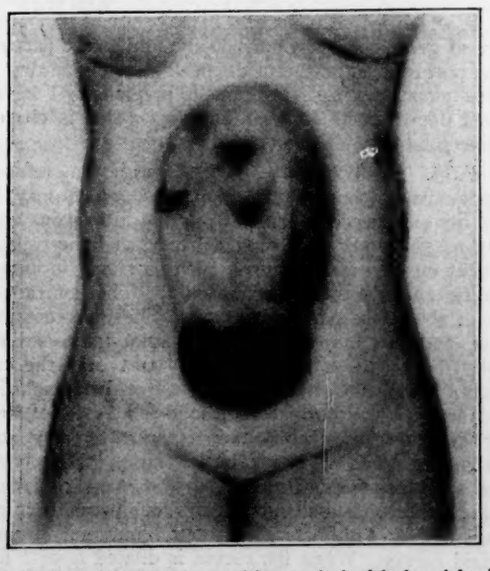

Fig. 2.—Left occipitoposterior position as it is felt by abdominal palpation. To the trained fingers this is as clearly the picture of a left occipitoposterior position as is the outline in figure 1. Comparison of the two sides shows the left to be more resistant, smoother and more convex. The back, therefore, is on the left. Irregularities crossing the midline indicate that the back is posterior. Comparison of the upper and lower pole shows the lower to be harder, smoother and more globular. The head, therefore, is presenting in the lower pole.

By minimizing the need for operative intervention, it lessens maternal morbidity and mortality and gives the child the best chance of being well born.

Furthermore, the primipara so managed becomes fitted for multiparous delivery in every sense of the word and as a result may give birth to the remainder of her children with almost no risk.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LITZENBERG AND BECK

DR. GRANDISON D. ROYSTON, St. Louis: I am glad to hear Dr. Beck recommend sedatives during labor. Ten hours sleep daily is necessary during pregnancy, labor and the puerperium, and particularly during lactation. Inadequate rest is probably the most important cause of the nervous phenomena of which patients complain after delivery. Scopolamine tablets have been less satisfactory than the more stable ampules. Following the expulsion of a copious plain water enema at a temperature of from 102 to 105 F., false pains usually subside; whereas, if the contractions recur at intervals of less than ten minutes and last forty seconds or longer, the patient is in labor. From 6 to 9 grains (0.4 to 0.6 Gm.) of sodium amytal by mouth is a helpful sedative for discomfort preceding active labor. During labor, Polak's dictum that manual dilation means manual laceration must be borne constantly in mind. Dr. Litzenberg supervises the third stage of labor so carefully that his patients suffer an unusually small loss of blood. In every case in which the progress of the patient is not satisfactory, blood counts are advisable, since the anemic individual is more susceptible to infection. Preparations for a possible transfusion should be made early whenever complications are suspected. Fever without apparent cause calls for a chest plate to determine a possible tuberculosis. Tender or fissured nipples should be treated by rest. Beck's kangaroo walk and mule kick have reduced the incidence of postpartum retrodisplacements requiring pessaries in my patients from 32 per cent to 10 per cent. Cauterization of chronic cervicitis acts as a real prophylactic measure in the prevention of cancer.

DR. WILLIAM F. HEWITT, Chicago: With the vomiting of the first trimester of pregnancy, the anemia shortly develops; therefore, we have a deprivation of vitamins during this first trimester. In order to head off this anemia I have found the best thing to do is to treat the actual vomiting, by the usual measures, such as dry diet and the bromides, and the giving of iodine early in pregnancy, particularly in hyperemesis gravidarum, in which iodine is pushed. I have found that ultraviolet rays are of great help; not only do they take care partly of the resulting anemia but they seem to cut down the vomiting. Since using the ultraviolet rays throughout pregnancy, I have noted a marked improvement in the offspring, which is observed on the delivery table.

DR. F. J. SCHATZ, St. Cloud, Minn.: In reference to Dr. Beck's paper concerning labor pains, which may be true or false, my experience has taught me that false pains may exist as early as six weeks preceding delivery, and these pains may be brought on by various causes, such as riding in automobiles or running an old-time sewing machine The contractions are regular at about five minute intervals. The time remains about the same, and they may last anywhere from one to seven hours, gradually disappearing. They always start over the crests of the ilium and radiate forward, ending above the symphisis. The interval between the normal contractions may be of longer or shorter duration; they are either anterior or may start and remain in the back. Contractions starting in the back often indicate a malposition. During the first stage of labor I use morphine and scopolamine in all my primiparas (except those that may deliver within the three hour limit) and in multiparas with rigid cervix. When the cervix is dilated from 1 to 2 cm., castor oil and quinine are given. If the patient complains before the course of quinine is completed, morphine, one-sixth grain (0.01 Gm.), with scopolamine, $\frac{1}{100}$ grain (0.0006 Gm.), is given, followed by two doses of scopolamine, $\frac{1}{200}$ grain (0.0003 Gm.). The first dose is given in from half an hour to one hour and the second dose one hour later. Usually the patient is narcotized after the first dose of scopolamine, and when good narcosis results from morphine and scopolamine, the patient develops an erythema of the skin resembling scarlet fever. This dose may be repeated, if the cervix is not completely dilated and the head is high. The medication should not be given if the patient will deliver within three hours. I do have some narcotized babies, but they are all resuscitated with oxygen and carbon dioxide. I have less narcosis with morphine-scopolamine than with plain morphine.

DR. ALFRED C. BECK, Brooklyn: I always use the ampules when I give scopolamine. I gave up the use of the tablets a good many years ago. If a few ordinary cases of labor are studied, I think there will be no difficulty in recognizing the difference between the true and the false labor. In false labor, the patient should be given sufficient sedatives, particularly at night, so that she can have a good night's sleep. The next morning she will be fresh and in better condition to start her labor. I learned years ago that to avoid difficulties with the child it would be necessary to refrain from the use of sedative drugs within two hours of the time of delivery. Accordingly, I now try to estimate as nearly as possible when the child is going to be delivered, and if it is assumed that delivery will take place within two hours, I do not repeat the sedatives. Of course a patient has pain when she bears down, but there are anesthetics to use at that time. If the binder is used, one can deepen the anesthesia and carry the patient through these bearing-down efforts with almost no suffering. It is my custom to ask the patient after she has had a pain if the anesthesia relieved it, and almost invariably she tells me that she was relieved, that she felt no pain.

DR. J. C. LITZENBERG, Minneapolis: Dr. Schreier mentioned the toxemias detected by the elevation of blood pressure. In a series of hundreds of cases I found that 3 per cent of all cases that presented a blood pressure between 130 and 140 ultimately turned out to be toxic; that 9 per cent, three times as many, became toxic when the blood pressure was between 140 to 150, and that between 150 and 160, 33 per cent were toxic. I found that almost all cases above 160 ultimately turned out to be toxic. The burden of my thesis is that the care of the woman must be carried on not for a definite time but to the time when she is restored to perfect health. When such methods can cure 90 per cent of retroversions, 100 per cent of anemias, and 100 per cent of cervicitis, increase the ultimate cure or improvement of the effects of toxemia and possibly prevent cancer, it would seem worth while to follow these women to restoration to perfect health. Just one word about cancer. Bloodgood has said in a booklet issued by the American Society for the Prevention and Control of Cancer that cancer is unknown ever to have developed in healthy or scar tissue; that it always develops at a point of chronic irritation. If that is true and if nearly all, if not all, cases of cervicitis can be cured, one of the places of chronic irritation where cancer ultimately occurs can be removed, and that place is the cervix uteri. It is one of the two most frequent places where cancer occurs. It is imperative that these women be followed to their ultimate cure. The limit is their restoration to health and not the expiration of a definite length of time.

The Cause of Anginal Pain.—There is the further problem to which I have alluded—how anginal pain is evoked in the heart. Opinion is tending to the conclusion that it arises from localized spasm in the finer coronary branches. The idea of coronary spasm would quickly be suggested by the spasmodic nature of the pain (fleeting cause—fleeting pain), and its relation not only to exertion but to emotion and to cold. The amazing effect of vasodilators, an almost unique phenomenon in therapeutics, carries its significance. Bearing on this problem several communications have been made in the last two or three years which show that in ordinary brief attacks of angina, spontaneous or induced, temporary changes often occur in the electrocardiogram, and the changes, though slight, are similar in nature to those which are known to be characteristic of coronary thrombosis. If these observations are further confirmed, no one will venture to deny at any rate the cardiac origin of anginal pain. It will be hard to imagine what can produce so distinctive and temporary a change in the heart muscle so well as spasm in the finer branches of a localized arterial territory, a spasm resulting in an ischemia which possibly rehearses the bigger drama of a coronary thrombosis with infarct.—Parkinson, John: Coronary Thrombosis, *Brit. M. J.*, Sept. 17, 1932, page 552.

GASTRIC ACHYLIA

GASTRIC ACIDITY STUDIES WITH HISTAMINE AND SEVEN PER CENT ALCOHOL

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In the past twenty years, considerable literature has appeared on gastric acidity values in which various chemical agents were used as gastric secretory stimulants. The three therapeutic agents that have been experimented with most are neutral red, 7 per cent alcohol and histamine. A few years ago several publications appeared in Eastern literature on neutral red, asserting that, in the differential diagnosis between true and false achylia, neutral red could be used to great advantage.

Soon after these publications appeared I began a series of experiments on gastric acidity values, using neutral red as a gastric acidity stimulant. I [1] had completed a study of ninety-eight cases with neutral red and made the following conclusions: First, neutral red may be advantageously employed as a test of gastric function just as any fractional method may be employed over a long period of time (more than sixty minutes), and, second, neutral red possesses little or no property as a stimulant of gastric acidity.

In recent years, considerable interest has been stimulated in the study of gastric acidity. The main proposition remaining in balance is the differential diagnosis between true and false achylia. Much investigation followed under ordinary methods of fractional (Rehfuss aspiration) and Ewald meals but with no satisfaction, owing to the wide variance of results. Because of lack of uniformity and confirmation of results obtained under ordinary methods, investigators turned to the use of 7 per cent alcohol and histamine as standard agents for investigative purposes. These therapeutic agents were first tested out on animals and later on man. The experiences that the German clinics had with 7 per cent alcohol were so satisfactory that European clinicians

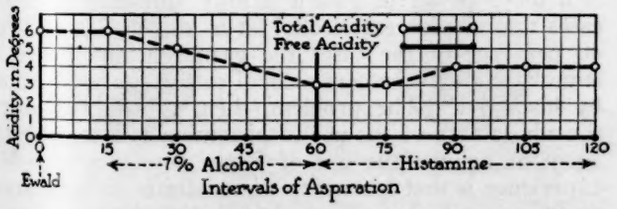

Chart 1.—Gastric acidity studies: acidity values following the injection of histamine, 7 per cent alcohol being used as a test meal. Histamine was injected after sixty minutes. In this group no free acid was present. In charts 1 and 2, the following cases were included: pernicious anemia, 28; carcinoma of the stomach, 31; constipation, 4; ulcerative colitis, 3; mucous colitis, 3; gastric syphilis, 2, and 1 each of cholecystitis, subtotal gastrectomy, gastric neurosis, primary achylia, cancer of the liver, and alcoholic gastritis. The acidity values for the Ewald test meal shown in charts 1 to 4 were obtained at the time of experiment and are included merely for comparative purposes.

accepted that agent in routine work, replacing the Ewald test meal to a great extent. The work with 7 per cent alcohol in this country was popularized mainly in the East; Bloomfield especially has done considerable work on the subject. It was used both as a gastric stimulant and as a standard test meal. Histamine was strongly advised for differential purposes between true and false achylia. Most of the investigations on histamine in this country were done by physiologists on dogs; their experience summarized was that histamine was a powerful gastric acidity stimulant and that in dogs the drug was toxic, but that in man the drug was not toxic. Again, the investigations reported on man were that histamine was the only agent known thus far which would differentiate true and false achylia. In connection with this work it seemed necessary to ascertain the therapeutic dose very cautiously, as every so often toxic reactions following histamine have been reported with comparatively minute dosages.

It therefore seemed advisable to check up on this work again. I started a series of experiments on patients, using 7 per cent alcohol and histamine indi-

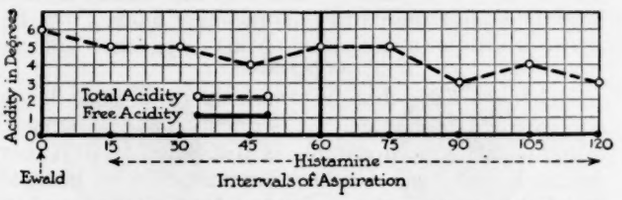

Chart 2.—Gastric acidity studies: acidity values following the injection of histamine, 7 per cent alcohol being used as a test meal. Histamine was injected five minutes after the meal. In this group no free acid was present.

dividually and in combination. In this work I attempted whenever possible to use the cases I had used in the work on neutral red.

PROCEDURE

I studied in all 102 cases, dividing all cases in two groups—those in which no free acid was present and those in which free acid was present. Both groups were subjected to two experiments: The first experiment consisted of giving 8 ounces (240 cc.) of 7 per cent ethyl alcohol as a test meal to all patients in that group, injecting histamine (0.1 mg. for each 10 Kg. of body weight) five minutes after the meal was taken. Then the stomach contents were aspirated every fifteen minutes for two hours, and tested for free and total acidity, using twentieth normal sodium hydroxide for neutralization and standard reagents as indicators.

The second experiment consisted of giving 8 ounces of 7 per cent ethyl alcohol as a test meal to all patients in the group, injecting histamine (0.1 mg. for each 10 Kg. of body weight) sixty minutes after the alcohol meal is taken. In this experiment the stomach contents were aspirated every fifteen minutes for two hours. The histamine was injected hypodermically into the arm. Blood pressures were recorded before and after histamine was injected.

OBSERVATION OF RESULTS

Chart 1 represents a group of seventy-eight cases in which no free acid was present on testing with the Ewald meal. The alcohol was given as a stimulating meal and aspirated every fifteen minutes for one hour. The purpose of the 7 per cent alcohol as a meal was to determine whether any free acidity would be stimulated. During the second hour, histamine was injected to determine whether any exaggeration of this stimulus would be evident. During the first hour no free acidity appeared, and no change was evident during the second hour after histamine injection. The results in all seventy-eight cases were fairly constant and uniform. I shall refer to the histamine reaction (toxic) later.

In chart 2 the same group of seventy-eight patients was given histamine five minutes after 8 ounces of 7

1. Streicher, M. H.: Gastric Achylia, J. A. M. A. 95: 326 (Aug. 2) 1930.

per cent alcohol was given as a test meal. The results in this experiment show no appearance of free acidity and do not indicate that any increase has been accomplished over cases in chart 1.

In chart 3 all patients were given 7 per cent alcohol, and histamine was injected sixty minutes later. During the second hour both free and total acidity were increased to a slightly greater degree than during the first hour. In 10 per cent of the cases the increase during the second hour (after histamine was injected) was no greater than the increase during the first hour (increase over the Ewald meal test).

In chart 4 all cases demonstrate an increase in both free and total acidity during the first and during the second hour; the acidity values in the second hour are slightly higher than those in the first hour.

COMMENT

Rehfuss states that histamine has not gone beyond the experimental stage. It is questionable whether the administration of histamine is justifiable from a therapeutic standpoint. Crohn's experience with histamine has been unfortunate, as he has seen marked and disagreeable reactions to histamine.

According to Crohn,[2] 1 cc. of a 1:1,000 solution of histamine injected intravenously as a clinical test will cause a prompt and fairly steady flow of gastric secretion in a normal stomach and in patients with intermittent achlorhydria. The dangerous effect and untoward reactions so often seen experimentally with animals seem to be absent in human beings. The dosage used in this work on patients was 0.1 mg. for each 10 Kg. of body weight. As we had experienced a considerable number of toxic reactions following this dosage, C. S. Williamson, head of the Department of Medicine, University of Illinois College of Medicine, advised decreasing the dosage to 0.05 mg. for each 10 Kg. The number of toxic reactions has decreased by 40 per cent, yet several bad experiences occurred. The toxic reactions vary from a mild headache (usually in the forehead) to a severe sharp

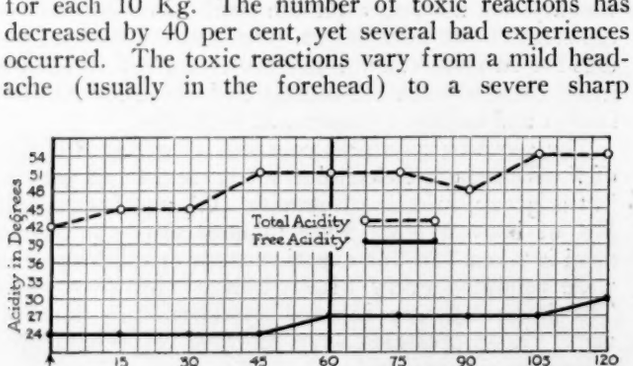

Chart 3.—Gastric acidity studies: acidity values following the injection of histamine, 7 per cent alcohol being used as a test meal. Histamine was injected after sixty minutes. In this group free acid was present. In charts 3 and 4, the following cases were included: cancer of the pancreas, 2; gastric neurosis, 3; cancer of the rectum, 2; chronic appendicitis, 2; and 1 case each of duodenal ulcer, constipation, cholecystitis, colitis, cirrhosis of the liver, obesity, gastric crises and gastric cancer.

splitting headache in the occipital region, followed by marked anginal pain in the chest. This anginal pain then becomes localized in the epigastric region and shifts to the lower extremities, then to the upper extremities and again to the occipital region. The face becomes extremely bluish red, the vision becomes very much blurred, and the patient interprets colors wrongly and feels extremely exhausted. The blood pressure drops about 30 per cent in less than a minute. As I see it, the symptoms of toxic reaction noted in these patients following histamine administration approximate fatality more closely than anything I had ever observed before besides death itself. To put it in the words of one of these patients who describes the entire reaction syndrome: he says "You feel like here you is and here you aint."

To me it seems like a big order to ask any patient to go through such an ordeal for the comparatively infinitesimal amount of information gained. I could subscribe readily to such a procedure only as a life saving measure. To substantiate this, I shall review my experimental results briefly. In the cases shown in charts 1 and 2 in which no free acid was present, the administration of 7 per cent alcohol during the first

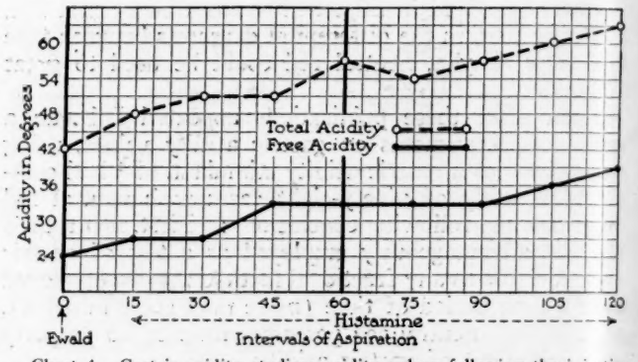

Chart 4.—Gastric acidity studies: acidity values following the injection of histamine, 7 per cent alcohol being used as a test meal. Histamine was injected five minutes after the meal. In this group free acid was present.

hour and histamine during the second hour gave negative results as well as the experiments in which histamine alone was given. The toxic reactions in this group were just as severe as the reactions in other groups. In the cases shown in charts 3 and 4 in which free acid was present, there is a definite increase demonstrated with histamine over the 7 per cent alcohol curve in about 60 per cent of the cases, while in the other 40 per cent it showed that 7 per cent alcohol acting alone would demonstrate an increase as great as that produced by histamine.

From these observations it is evident that histamine is a more powerful gastric acidity stimulant in some cases than 7 per cent alcohol; it is also evident that in 40 per cent of the cases the gastric acidity curve is stimulated by 7 per cent alcohol to the same degree as by histamine. The problem, then, is centered about the advisability of the use of histamine as a therapeutic agent as against the use of 7 per cent alcohol. My experience is that histamine demonstrates definite toxic reactions while 7 per cent alcohol does not.

For proper evaluation of any work on gastric acidity, it is important to remember that, while artificial gastric acidity stimulants (alcohol-histamine) are carefully standardized, their usage is not as physiologically correct as that of an Ewald meal [3] or, still better, a Riegel test meal.

CONCLUSIONS

1. Histamine is a marked gastric acidity stimulant.
2. Seven per cent alcohol is a substantial gastric acidity stimulant.
3. Histamine is apparently extremely toxic in man (0.05 mg. for each 10 Kg.).
4. Seven per cent alcohol is not toxic in man.
5. It seems advisable to discontinue the use of histamine diagnostically.

307 North Michigan Avenue.

2. Crohn: Affections of the Stomach, 1927, p. 377.

3. Gaither, E. H.: Ann. Int. Med. 5:992 (Feb.) 1932.

BENIGN TUMORS OF THE TRACHEA AND BRONCHI

WITH ESPECIAL REFERENCE TO TUMOR-LIKE FORMATIONS OF INFLAMMATORY ORIGIN

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AND
CHEVALIER LAWRENCE JACKSON, M.D.
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The term benign is used in the title in its conventional sense and for the sake of simplicity. A growth that causes death is not benign in the strictest meaning of the word, and an inflammatory hyperplasia shaped like a tumor is not, histologically, a neoplasm, but the clinician's primary concern in tumor-like nonmalignant obstructions of the bronchi is the secondary atelectasis, bronchiectasis and pulmonary abscess caused by obstruction to ventilation and drainage, and how to get rid of the obstruction.

It is from this practical point of view that the subject is here presented.

The following is a list of the benign tumors and nonmalignant tumor-like conditions found in our tracheobronchoscopic case records: angioma, hematoma, adenoma, myoma, myxoma, papilloma, fibroma, fibrolipoma, edematous polyp, myomatoid edematous polyp, lymphoma, lymphangioma, lymphadenoma, lipoma, ecchondroma, osteoma, chondrosteoma, retention cyst, amyloid tumor, aberrant thyroid tumor, specific granuloma and nonspecific granuloma.

The names are given as shown in the records. The histologic examinations were made by quite a number of different and differing pathologists. Histologic nomenclature has long been, and to some extent still is, so much a matter of personal opinion that doubtless many of the conditions might have been, and by other pathologists would have been, given different names. However, the histologic structure showed no invasive qualities, and the clinical course supported a nonmalignant diagnosis. One outstanding feature of many of these growths is the inflammatory hyperplasia, even in those that were granted a place among neoplasms. Many of the growths on reexamination were regarded as not histologically true neoplasms. The borderline is not distinct from a histologic point of view, and, moreover, an inflammatory hyperplasia may be the site of cellular developments that would at a later stage place the lesion among the true neoplasms, benign or malignant.

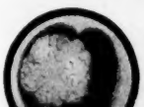

Fig. 1 (case 1).—Bronchoscopic view down the trachea of a woman, aged 64, showing a lipoma almost completely occluding the dilated left bronchial orifice and causing obstructive emphysema of the left lung. Complete relief of the symptoms (cough, hemoptysis and expectoration) followed bronchoscopic removal of the tumor.

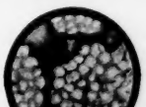

Fig. 2 (case 3).—Bronchoscopic view down the trachea of a man, aged 46, showing multiple papillomas springing from the mucosa of the trachea and the right bronchus.

Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints.

TUMOR-LIKE INFLAMMATORY HYPERPLASIA

An interesting class of case has been observed by us bronchoscopically, in which a tumor obstructing a bronchus, when removed, showed nothing more distinctive than chronic inflammatory tissue. These growths, not distinctive histologically, are of the utmost importance clinically, because of the disastrous pathologic effects of bronchial obstruction on the tributary area of the lung. Anything of tumor-like form located in a bronchus has a clinical significance out of all proportion to that of a pathologic process of similar character and extent located elsewhere. This clinical importance is entirely independent of histologic classification and nomenclature. It is due to the fact that when a bronchus is obstructed by a tumor the defensive power of the tributary portion of lung is lowered; secondary pathologic changes (atelectasis, suppuration, drowned lung, pulmonary abscess and bronchiectasis) are almost certain to follow, and the seriousness of these consequences may be out of all proportion to the innocence per se of the primary lesion, if it had not been obstructive.

Fig. 4 (case 4).—Endobronchial view of granulation tissue causing slight obstruction of the orifice of the right main bronchus. The symptoms present were productive cough and a wheeze.

Fig. 6 (case 6).—Bronchoscopic view down the trachea of a man, aged 64, showing multiple bony growths springing from the tracheal walls.

ETIOLOGY

Stagnation of secretions, especially purulent secretions, has seemed to be one of the etiologic factors in the causation of tumor-like inflammatory growths. The effect of bronchoscopic aspiration in the clearing of all types of inflammation of the bronchial mucosa and in the prevention of recurrence of inflammatory growths is good evidence of the effect of stagnation as a perpetuating as well as a primary cause of bronchial inflammation and of the hyperplasia secondary thereto. The histologic structure of many endobronchial tumors (figs. 11 and 14) indicates that they are of inflammatory origin, but this does not give us the fundamental etiologic factor we seek. Being inflammatory, the natural inference is that they are due to infection, but the character of the infective agent that produces this tendency to tumor-like formation has not yet been definitely identified. Moreover, pathologic processes histologically classified as inflammatory may occur without conclusive evidence of infection, as in the inflammatory defensive zone peripheral to a nonulcerative cancerous process. The inflammatory tumor-like formations in some instances grossly resembled the specific granulomas such as we have bronchoscopically observed in tuberculosis, syphilis, actinomycosis and blastomycosis. So far as we are at present able to determine, it may be said that any inflammatory condition in the bronchi may be associated with a nodule or nodules that assume, grossly, a tumor-like form. Mechanically, it does not seem impossible that the expansion and contraction and especially the elongation and shortening of the bronchi during respiration might have some effect in molding protuberant inflammatory new formations into tumor-like form, in a way somewhat similar to the pill-roller of the pharmacist. This is mere conjec-

ture, however. The causes of growths histologically classed as benign neoplasms, other than teratomas and cysts, are unknown, though in most of them there is evidence of inflammation as a secondary, if not a primary, factor.

GROSS PATHOLOGY

Inflammatory formations of such morphology as to justify the name of tumor have been found broncho-

Fig. 7 (case 6).—Section from a bony nodule removed from the trachea of a man, aged 64. Low power view, showing a small marrow cavity. The surface in the lower right hand corner represents pyknotic epithelium overlying the nodule.

scopically in both pedunculated and sessile forms. In some of these cases the pedicle was narrow, but the sessile form predominated. In size the growths varied from a granule no larger than a grain of sand to a pedunculated tumor 2 cm. in diameter that had made room for itself by producing a localized enlargement of the bronchial lumen sufficient to accommodate itself and to allow, additionally, a little by-passage of air. This condition usually resulted in a check-valve action, producing separately or alternately emphysema and atelectasis in the distal area of the lung.[1]

ENDOBRONCHIAL APPEARANCES

To any one familiar with the beautiful normal endoscopic image, the intrusion of a tumor-like mass into the picture is instantly obvious. The growth may be covered with apparently normal mucosa, but the form is evidently pathologic. In other cases both color and

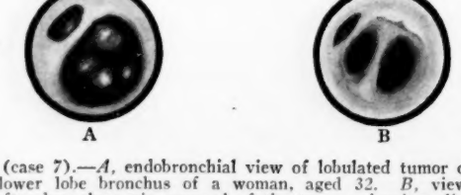

Fig. 8 (case 7).—*A*, endobronchial view of lobulated tumor obstructing the left lower lobe bronchus of a woman, aged 32. *B*, view at same location after bronchoscopic removal of the tumor, showing slight irregularity of mucosa at site of removal and normal bronchial spurs below.

form may justify a tentative diagnosis of new growth, yet histologic examination is the final arbiter. In some of our cases histologic examination revealed a neoplasm; in others the tumor was made up chiefly of chronic inflammatory tissue and did not justify neoplastic classification. The most striking thing in the bronchoscopic image of these inflammatory hyperplasias was the tumor-like appearance. In nearly all instances the impression given was that of a neoplasm; the histologic finding of only chronic inflammatory tissue came rather as a surprise. The growths were, in some instances, a mounding of tissue from one wall into the lumen between its dome and the opposite wall. In some cases air passed in but not out, and in other cases out but not in; in still other cases there was apparently no room for the by-passage of air. In some cases inflammatory tumors have been distinctly pedunculated, with more or less of a tendency to flop. The surface of the growths was reddish and velvety in some instances; in others, roughened and granular, and in still others, whitish pink, with small branching vessels visible. In a few instances the surface was eroded, and a minute quantity of blood was oozing; but ulceration seems relatively rare as compared to true neoplasms and the specific granulomas, tuberculosis, syphilis and the mycoses. In a few cases the growths have been in

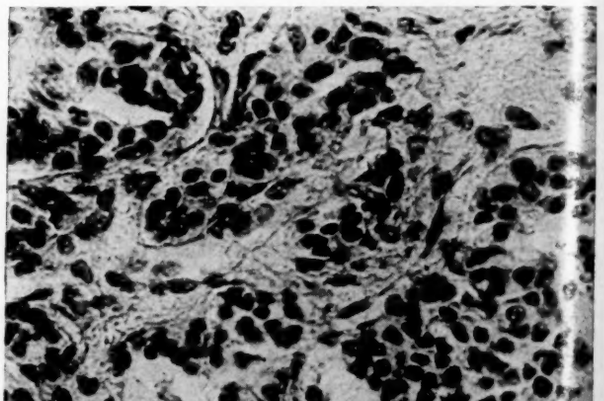

Fig. 9 (case 7).—This section shows an extreme degree of epithelial proliferation and invasion of granulation tissue. It was cut from a specimen removed bronchoscopically from an "adenomatous polyp" which almost completely obstructed the left lower lobe bronchus. This is a borderline case in which a malignant process cannot be excluded at this stage. Subsequent bronchoscopic observations are required. Compare with the obviously benign proliferation in figures 11 and 14.

the multiple, cauliflower, exuberant form resembling multiple papillomas, but proving histologically to be nonspecific granulomas, in some instances merely granulation tissue (cases 4 and 5; figs. 4 and 5).

SECONDARY PATHOLOGY

The secondary effects of benign growths in a bronchus are local and distal. The most marked local effect is the production of a dilatation of the bronchus to accommodate the bulk of the growth. This is most marked in slowly growing, firm tumors of fibromatous character. It is a dilatation that is entirely distinct from the suppurative bronchiectatic dilatations that occur distal to the obstructive tumor. The distal effects of benign growths are the effects of bronchial obstruction of one of the three types, stop-valve, by-pass valve or check-valve.[2] These produce obstructive emphysema,

1. Jackson, Chevalier: The Mechanism of Physical Signs in Neoplastic and Other Diseases of the Lung: With Especial Reference to Atelectasis and Emphysema, J. A. M. A. **95**: 639-644 (Aug. 30) 1930.

2. Jackson, Chevalier: Obstruction bronchique, Bull. et mém. Soc. méd. d. hôp. de Paris **54**: 1583-1584 (Nov. 10) 1930; footnote 1.

obstructive atelectasis, ultimately bronchiectasis, abscess or both and occasionally empyema. The suppurative disease follows the lowered defensive power of the lung secondary to obstruction to ventilation and drainage.[3] So long as these are free, the defensive power of the lung can usually annihilate bacterial invaders by the bronchial route.

HISTOLOGY

The literature, what little there is, dealing with benign endobronchial growths is in utter chaos, not so much on the question of the benignancy of the lesions, but because of a lack of a standard histologic nomenclature. For example, there is reason to believe that if we were to submit to some histologists sections from all the growths that have been reported as adenomas, most of the growths would be reclassified as inflammatory tissue; in the small remainder of the cases, all histologists might classify the growths as true adenomas. This literary fact is mentioned not as criticizing histologists and certainly not as reflecting on the diagnostic value of biopsy, but rather as emphasizing the importance of inflammatory processes, either primary or secondary, in benign tumors and obstructive tumor-like formations in the bronchi. In quite a number of cases we have found a bronchus entirely occluded by a tumor (fig. 13, case 9), the removal of which cured an atelectasis, but on histologic examination the tumor could not be classified as a neoplasm but rather as a tumor-like formation made up of chronic inflammatory hyperplasia. The structure was not simply a mucosal bronchitis, but an inflammatory new formation morphologically different from mucosa. Chronic mucosal inflammation coexisted in the bronchi as a primary or secondary condition, but mucosa as such did not exist in the tumors.

Fig. 10 (case 8).—Endobronchial view of sessile tumor mass obstructing the right lower lobe bronchus in a woman, aged 25.

In regard to the histologic appearances of the tumor-like obstructions in the bronchi, in connection with the case reports it is necessary to emphasize the fact that we have no thought of presenting anything new from a histologic point of view. It is the great clinical importance of the bronchial obstruction caused by these tumor-like formations of inflammatory hyperplasia that seems worthy of presentation. The histology is referred to only as part of the records of the case. Space does not permit of a general discussion of the histology of benign neoplasms of the bronchi.

SYMPTOMS

The symptoms will depend largely on three factors: (1) the size of the bronchus invaded, (2) the stage of the disease at which the patient is encountered and (3) the character of the causative inflammatory process. Obviously, the obstruction of a large bronchus will probably produce more in the way of symptoms than a small one, because of the difference in the extent of the tributary lung tissue. The stage at which the patient comes under observation has an important bearing on the symptoms presented. Early in the development of inflammatory tumors there may be no symptoms other than those of the associated inflammation; these may be so slight as to escape notice or they may be relatively severe. Cough, slight mucoid expectoration and occasional slight elevation of temperature may be noted. Two symptoms, however, are almost always present, namely: (1) wheezing heard at the open mouth and (2) hemoptysis. A wheeze heard at the open mouth is always to be found at some stage in all cases in which the trachea or larger bronchi are involved. As soon as the growth attains a size sufficient to interfere with ventilation and drainage, atelectatic and suppurative symptoms appear. When complete obstruction has persisted for a time, drowned lung and, later, abscess develop. There are then chilliness, fever of septic type, purulent, usually blood-tinged and foul expectoration and clubbing of the fingers and toes. Variations in tightness of the obstruction may make the purulent expectoration markedly periodic. In such cases fever may progressively rise with the accumulation and fall with the evacuation; chilliness may accompany the rise. Pain is not usually present unless the pleura becomes involved in the inflammatory process.

DIAGNOSIS

The diagnosis of a benign endobronchial growth during life can be positively made by bronchoscopic biopsy, and this is the only way in which it can be made. The bronchoscopic appearances lack some of the characteristics of those seen in malignant growths and especially the accompanying fixity, rigidity and tortuosity characteristic of the bronchoscopic findings of malignant disease; but certainty requires histologic examination of a bronchoscopically removed specimen. One of the most important diagnostic points in this

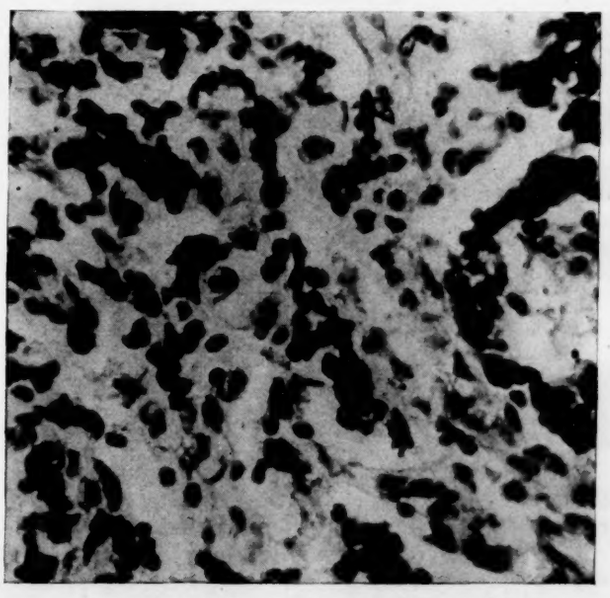

Fig. 11 (case 8).—Note the resemblance to pulmonary alveoli lined by several layers of flattened cells. These cells are nearly all pyknotic and for this reason stain deeply. Occasionally a lining cell may be seen that is not pyknotic, as the one just above the center of the section and the one showing only beginning pyknosis in the exact center. These are probably not neoplastic cells.

connection is the exclusion of the perineoplastic, reactionary, noninfective zone associated with malignant growths. This perimalignant tissue sometimes assumes a tumor-like form. In older patients especial care is necessary, but youthfulness does not necessarily exclude a malignant process. Some of our patients with malignant endobronchial growths have been young adults. If the histologic reports are inconclusive, the biopsy should be repeated. If the growth is a benign one of

3. Jackson, Chevalier: Suppurative Diseases of Lung: Report on a Series of Bronchoscopic Observations, Proc. Roy. Soc. Med. (Sect. Laryng.) **24**: 1-24 (Nov.) 1930; footnotes 1 and 2.

inflammatory origin, the entire growth will be removed, and invasion may be easily excluded; if malignant, the zone of invasive cells will be reached. In no case is it wise to rely on the results of a biopsy negative as to neoplastic evidence. Removal of the entire growth and subsequent bronchoscopic search for recurrence constitute the only safe plan of procedure, and we have found it practically infallible if the patient does not fail to appear for reexamination.

Treatment.—All benign endobronchial growths require bronchoscopic removal. Peribronchial and compressive tumors, even though benign, are not ordinarily amenable to endoscopic methods of procedure; we have yet to see an endobronchial benign tumor that could not be removed by bronchoscopic methods. Some of the growths, especially papillomas, are prone to recur, but repeated bronchoscopic removals will end in a cessation of repullulation at the original site. Papillomas may appear at new and even remote locations; for this reason it is unwise to deal radically with the base, either with forceps or with caustics. Ultimately they cease to reappear if the stagnation and the mucosal inflammation are efficiently treated by bronchoscopic aspiration. Inflammatory tumor-like formations also require bronchoscopic removal to restore perfect ventilation and drainage and thus to cure and prevent suppuration in the tributary portion of the lung. They have less tendency to recur than papillomas, and, as with the latter, the best means of combating the tendency to recurrence is the stopping of stagnation by bronchoscopic aspiration at biweekly intervals until the mucosa becomes normal.

All forms of benign growths are easily removed by bronchoscopic means, under local anesthesia in the case of adults and with no anesthetic in the case of children.

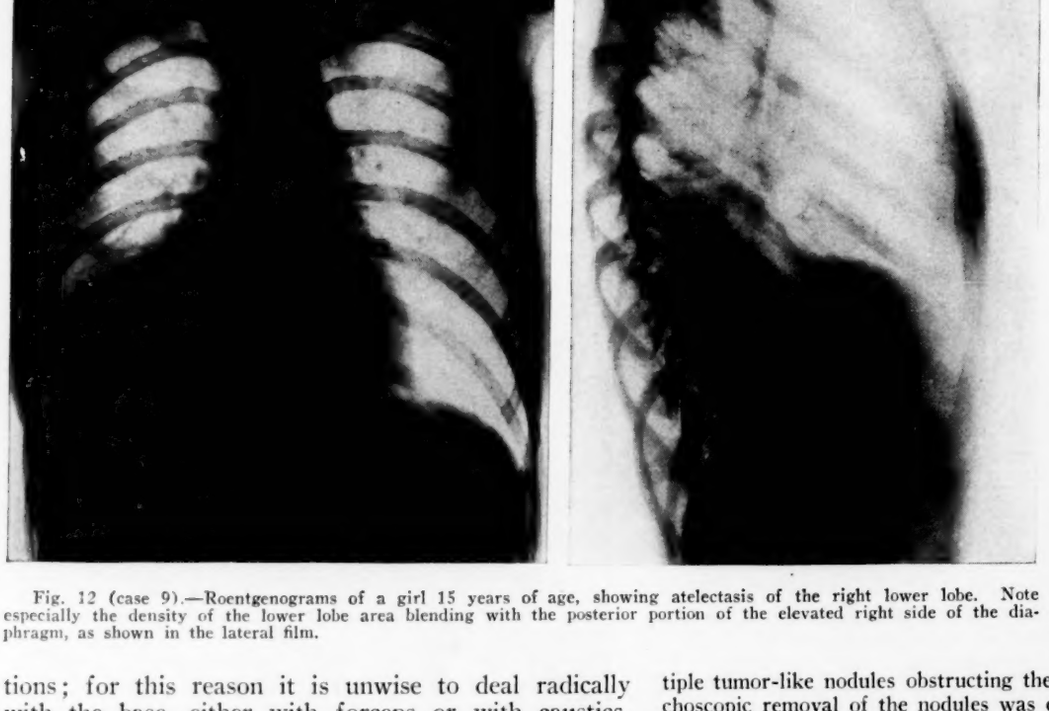

Fig. 12 (case 9).—Roentgenograms of a girl 15 years of age, showing atelectasis of the right lower lobe. Note especially the density of the lower lobe area blending with the posterior portion of the elevated right side of the diaphragm, as shown in the lateral film.

REPORT OF CASES

CASE 4.—*Granulation tissue in right main bronchus.* K. B., a white man, aged 23, complained of a productive cough dating from an attack of "grip" nine months previously. The daily sputum amounted to about one-half cupful and was not blood-stained. The cough had been worse during the past month. Roentgen examination showed a moderate amount of peribronchial thickening extending downward from both right and left hilus areas toward the bases, the appearances being those of chronic bronchitis with possible incipient bronchiectasis. Bronchoscopy showed a considerable amount of thick purulent secretions coming from both main bronchi, more from the right than from the left. The lumen of the right stem bronchus was partially obstructed by an irregular mass of tissue resembling granulations (fig. 4). A specimen of the tissue was removed for histologic examination, and the secretions were aspirated. Microscopic examination showed the appearances characteristic of granulation tissue (fig. 5).

Comment.—This patient was treated bronchoscopically at intervals of several months. At the end of a year his condition was greatly improved. Throughout the ensuing year he was not treated, but continued to be practically symptom-free and gained progressively in weight. He is still under observation.

CASE 5.—*Complete relief of serious pulmonary and general symptoms following bronchoscopic removal of an inflammatory tumor from the right bronchus.* Following influenza eight years previously, a man, aged 63, had had a slightly productive cough with occasional blood-streaking. Night sweats, anemia, fever and a loss of weight of 47 pounds (21.3 Kg.) during three months led to a suspicion of pulmonary tuberculosis. This diagnosis was ruled out by Dr. V. P. Sydenstricker, who discovered multiple abscesses in the right lower lobe and referred the patient to us for diagnostic bronchoscopy. This procedure revealed multiple tumor-like nodules obstructing the right bronchus. Bronchoscopic removal of the nodules was easily accomplished with ball forceps. Histologic examination showed them to be composed of inflammatory tissue. The aspirated secretions contained fungi, apparently Streptothrix, of the order of Actinomyces. Long chains of streptococci were obtained in pure culture on bouillon. After removal of the tumor, improvement soon began. At the end of ten months the patient was reported to be in good physical condition.

Comment.—The presence of fungi as well as pyogenic organisms suggests the possibility of these as etiologic factors in the production of the inflammatory growths.

CASE 6.—*Multiple "osteomas" of the trachea and right bronchial orifice; "tracheopathia osteoplastica."* A man, aged 64, for forty years a chemical worker, had had mucoid, blood-streaked sputum for a year and a half. There were slight dyspnea and pain, not severe, in the left side of the chest and in the lumbar region. Physical signs and the results of serologic tests were negative. Roentgen examination of the chest gave negative results, but showed osteoarthritis of the lumbar spine. There were no shadows of the tracheal rings. The

patient had been a drinker of beer and light wines and was developing therefrom a cirrhosis of the liver. Marked hypertension (220) was noted. Bronchoscopic examination (Dr. Emily Van Loon) revealed small, hard, gritty tumors scattered over almost the entire mucosal surface of the trachea and right bronchus as far as the upper edge of the right upper lobe. None were seen in the left bronchus. The growths were too numerous to be readily counted, but there were probably more than fifty. The size varied from 1 to about 3 mm. in diameter. Some were rounded, others angular (fig. 6). Some of the tumors were covered with epithelium; others transmitted a gritty sensation through the tube, as though denuded. On grasping with forceps, they seemed rather firmly attached, as with fibrous tissue, but they were not apparently integral with the cartilaginous tracheal rings and were readily nipped off with bronchoscopic tissue forceps. Histologic examination of a number of specimens by Dr. F. W. Konzelmann may be summarized as follows: "These fragments present a laminated hyaline tissue. In several areas the laminated hyaline tissue is arranged in concentric layers about a small space. Between the lamellae in some specimens there are small canaliculi; in one specimen there was a marrow like cavity showing adipose tissue. The histologic diagnosis of osteoma seemed at first justifiable, but after further studies on additional specimens I am inclined to regard the growths as exostoses" (fig. 7). Large numbers of the growths were removed at weekly sittings, a little local anesthesia being used, but when the patient was last seen, the growths were still visible in the trachea.

Fig. 13 (case 9).—Endobronchial view of nonspecific granuloma obstructing the lower lobe bronchus of a girl, aged 15, and causing productive cough, fever and loss of weight.

Comment.—The occurrence of large numbers of osseous growths in the trachea and main bronchial orifices is rare. Locally, the disease seemed to be benign, but osteoma of the trachea sometimes develops malignant qualities. As the condition was not obstructive, there was little suppuration. The patient attributed the condition to the occupational inhalation of chemical fumes for forty years. The lumbar pain was probably due to the spinal osteoarthritis. The pain in the left side was probably not due to the bony growths. Review of this case justifies the opinion that the tumor-like growths were of inflammatory origin and that the condition was really "tracheopathia osteoplastica."

CASE 7.—*"Adenomatous polyp" of the left bronchus.* A woman, aged 32, was admitted to the Temple University Hospital with a history of recurrent pulmonary hemorrhages for the past two years. She stated that she had never "regained her strength" after having had the "flu and pleurisy" three years previously. During the past three years she had been under the observation of several physicians and had been hospitalized for periods of as long as two months at a time. She had received a course of six roentgen treatments. The hemorrhages showed a tendency to occur at the time of the menses. Several were quite profuse, blood "gushing from the nose and mouth." The last hemorrhage occurred three weeks prior to admission. Repeated negative roentgen and sputum examinations were regarded as sufficient to exclude tuberculosis. Our roentgen examination (Dr. W. E. Chamberlain) showed the heart and mediastinum displaced to the left and the left side of the diaphragm elevated. There was a soft tissue shadow of irregular outline in the region of the root of the left lung. These findings were interpreted as partial atelectasis of the left lung due to bronchial obstruction. The most likely diagnostic possibility was thought to be primary carcinoma of the left main bronchus. Bronchoscopy showed a lobulated reddish tumor obstructing the left lower lobe bronchus (fig. 8*A*). This tumor was freely movable and seemed to be pedunculated, but the exact site of attachment of the pedicle was hidden by the bulk of the growth. Several specimens of tissue were removed for histologic examination. At subsequent bronchoscopies additional tissue was removed for further histologic examination and for the purpose of opening up the bronchial lumen. After complete removal of the obstructive tissue, it was seen that the tumor mass had been attached to the anterior wall of the lower lobe bronchus just below the level of the left upper lobe bronchus. A clear view was obtained of the subdivisions of the lower lobe bronchus, and they were found to be entirely normal in appearance (fig. 8*B*). All of the tissue removed bronchoscopically was carefully studied by the pathologist, Dr. Frank W. Konzelmann, and his conclusions were that the process was not truly neoplastic, though the proliferating epithelium, which showed a tendency to gland formation, had much the same appearance as that found in lesions classified by some writers as "adenomatous polyps" (fig. 9). The lesion could not be regarded as entirely free from suspicion of malignant change.

Comment.—This patient is to return for further study. Though the endobronchial appearances were practically normal at the time of her discharge, the roentgen findings showed little change. The patient was symptomatically much improved; she had no hemorrhages during the month and a half that she was under treatment, and gained about 10 pounds (4.5 Kg.).

CASE 8.—*"Nonspecific granuloma" of the right lower lobe bronchus.* A woman, aged 25, had had hemoptysis, productive cough and dyspnea on exertion for two years or longer. Dr. Harold Robertson found limitation of expansion, with diminution of voice and breath sounds over the right lower lobe. Roentgen examination revealed elevation of the right leaf of the diaphragm, which was interpreted as indicating obstructive atelectasis of the right lower lobe, and accompanying shadows were thought to indicate chronic inflammation of long standing. Diagnostic bronchoscopy was required to determine the cause

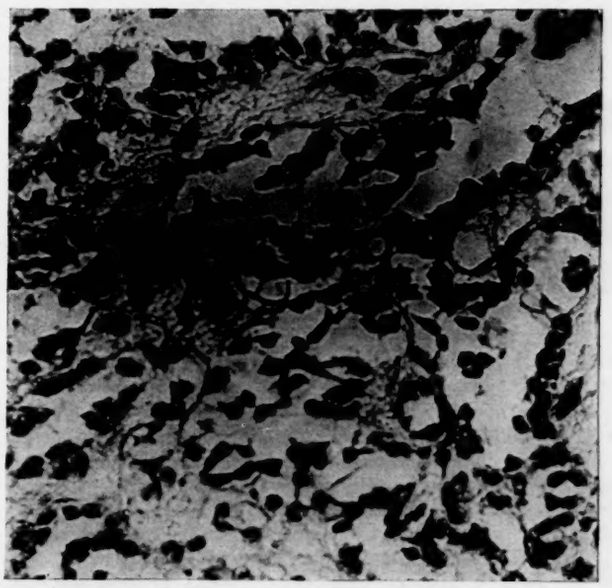

Fig. 14 (case 9).—Section of bronchoscopically removed specimen of tumor shown in figure 13. Note the edematous character of the young connective tissue. There are numerous irregular spaces lined by flat cells, many of which are pyknotic. The picture resembles atelectatic lung tissue, though the tumor mass was entirely endobronchial.

of bronchial obstruction. A firm rounded tumor presented itself when the distal end of the bronchoscope reached the right lower lobe bronchus (fig. 10). Mucopurulent, blood-stained secretion was coming up from below the growth, but no bubbling indicative of the passage of air was noted. The growth was excised with bronchoscopic tissue forceps. Histologic examination by Dr. Frank W. Konzelmann showed it to be made up of inflammatory hyperplasia, lacking the characteristics of a true neoplasm (fig. 11). Three successive repullulations of the growth were bronchoscopically removed before

they attained obstructive size; recurrences then ceased. Physical signs indicated restoration of function to the right lower lobe at the end of three months, and all symptoms had disappeared. At later observations the roentgen shadows persisted, but symptomatic cure seemed complete and permanent.

Comment.—It is a logical inference that had not the defensive powers of the lower lobe been restored by the reestablishment of ventilation and drainage consequent on the removal of the obstructive tumor, bronchiectasis and abscess would have followed.

CASE 9.—*"Nonspecific granuloma" of the right lower lobe bronchus.* A girl, aged 15, came to us complaining of a "loose" cough, with little expectoration. The cough had been present for five months, and during this period there had been several attacks of chilliness, with elevation of temperature ranging to 103 F. The attacks were becoming more frequent, and the patient was rapidly losing weight. The referring physician thought that there was probably bronchial obstruction, possibly foreign body. The past medical history included mention of measles and whooping cough and bronchopneumonia at the age of 5 years. Roentgen examination several months prior to admission had shown "a blurring of the lower part of the right lung." This was regarded as a "healed tuberculous spot." Our roentgen examination (fig. 12) showed a marked density of the right lower lobe, with pleural thickening. The heart was displaced to the right, and the right crest of the diaphragm was indistinguishable. These findings were interpreted as indicative of atelectasis of the right lower lobe. Bronchoscopy showed a smooth tumor-like mass, dusky red, obstructing the right lower lobe bronchus (fig. 13). It was possible to introduce the bronchial aspirator past the obstruction, and a considerable quantity of blood-stained secretions was aspirated. At subsequent bronchoscopies specimens of the obstructive tissue were removed for biopsy. The tissue removed bronchoscopically was carefully studied under the microscope, and it was found to be inflammatory (fig. 14). Bronchoscopic removal of the obstructive tissue and aspiration of secretions resulted in progressive improvement in the aeration of the right lower lobe, as shown by physical signs and roentgen examination (fig. 15). Treatment was discontinued for a number of weeks, and the patient returned with a partial recurrence of the atelectasis (fig. 16), which again cleared after further bronchoscopic treatment (fig. 17). Subsequent observation has shown that there is a tendency to recurrence of the obstructive tissue, but there has been no return of the atelectasis for the past year and a half.

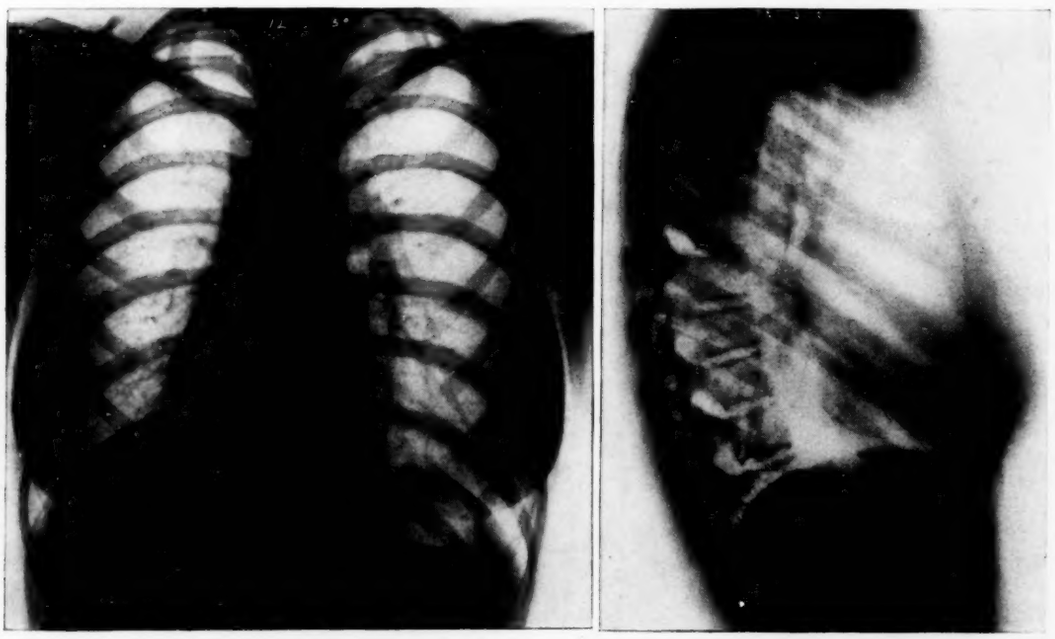

Fig. 15 (case 9).—Roentgenograms of the same patient after bronchoscopic removal of the tumor and the aspiration of secretions. Note the clear outline and normal curve of the right side of the diaphragm in both the anteroposterior and lateral views. (Compare with figure 12.)

Comment.—This case illustrates the importance of bronchial obstruction as a factor in pulmonary suppuration. This patient's symptoms disappeared after bronchoscopic removal of the obstructive tissue and drainage of the obstructed bronchi.

CONCLUSIONS

1. Benign growths of the tracheobronchial tree encountered bronchoscopically are as follows: angioma, hematoma, adenoma, myoma, myxoma, papilloma, fibroma, fibrolipoma, edematous polyp, lymphoma, lymphangioma, lymphadenoma, lipoma, ecchondroma, osteoma, chondrosteoma, tracheopathia osteoplastica, teratoma, retention cyst, amyloid tumor, aberrant thyroid, specific granuloma, (*a*) tuberculous, (*b*) syphilitic and (*c*) mycotic, nonspecific granuloma, granulation tissue and inflammatory hyperplasia. Many of these are of inflammatory origin and would not be classed histologically as true neoplasms.

2. The most common of all growths encountered bronchoscopically is a tumor-like formation of inflammatory hyperplasia. Histologically the lesion is not simply a chronic mucosal bronchitis, though, of course, the latter condition may coexist in the neighborhood.

3. The borderline between benign true neoplasms and inflammatory hyperplasia is often indistinct histologically. Clinically, the seriousness of the lesion depends more on the degree and the region of the obstruction it causes than on the histology of the growth. A papilloma at the bifurcation may kill the patient by asphyxia, and a tumor-like inflammatory hyperplasia in a bronchus may produce, in the tributary portion of the lung, atelectasis, drowned lung, pulmonary abscess, bronchiectasis and empyema or all of these in succession. A recovery from these secondary conditions follows bronchoscopic removal of the growth, if the diagnosis is not made too late.

4. The only way an early diagnosis of endobronchial growth can be made positively is by bronchoscopy.

5. The only way to determine on the living patient that an endobronchial growth is benign is by histologic examination of a bronchoscopically removed specimen.

6. Bronchoscopic removal of an endobronchial growth is a simple and safe procedure in trained hands.

7. Removal of the obstructive growth reestablishes ventilation and drainage, and thereby the defensive power of the lung is restored.

8. Reexamination within a few weeks or months is indicated after removal of a benign growth from a bronchus just as in the case of removal of similar growths elsewhere in the body.

ABSTRACT OF DISCUSSION

DR. JOSEPH C. BECK, Chicago: I have had in my experience but one malignant tumor of the trachea. This was in 1915, a multiple fibroma, which I removed and which was followed by ectasia of the esophagus. Microscopic examination revealed that it was nonmalignant, and it could probably have been removed by the ordinary method of endoscopy without this complication. I have never reported this case but will do so in connection with this discussion. All have seen secondary extension of tracheal papillomas, the trachea opening farther down. The invasion of the thyroid gland through the trachea is not uncommon in nonmalignant growths. I will refer to a case that Dr. McCullough of Pittsburgh showed me last year—a piece of tissue which he removed by aid of the bronchoscope. We thought it was an unusual type of malignant growth, but subsequently the pathologist showed that it was lung tissue which probably herniated in the bronchus. Dr. McCullough removed the growth and three months later I was again in Pittsburgh and saw the patient. The roentgenograms showed consolidation of the lung, and the patient's condition was normal. One might consider that the x-ray treatment (many pictures having been taken) had cured the patient of malignancy. An interesting phenomenon is specific granuloma. Up to 1927 there had been tabulated 261 cases of tumor in the bronchi and trachea, of which 140 were nonmalignant. These were not the type the authors mentioned but rather typical papilloma, fibroma and adenoma, and the greatest number were carcinoma and sarcoma. Since then there have been a good many added, and in the *Transactions of the American Bronchoscopic Society* Drs. Myerson and Patterson have written on the subject. The important thing in this work is the combination of five types of men who will work together in advancing the work: the internist, a roentgenologist who is also a radium expert, a pathologist, a chest surgeon, and a laryngologist qualified in bronchoscopy. In Cook County Hospital in the last three years there have been reports of 3,500 postmortems in which there were fifty-two cases of tumors found in the bronchi, with bronchoscopy, and in all these there was only one case of nonmalignant growth. In another hospital, forty-two cases of tumor within the bronchi were found, and only one case was nonmalignant. At the Research Hospital, University of Illinois, thirty-nine cases of neoplasm of the tracheobronchial tree have been reported, both malignant and benign, found with the aid of the bronchoscope; only a small number of benign tumors were found, and two definite granulomas such as the cases shown today.

DR. THOMAS E. CARMODY, Denver: My experience has been mostly in cases of atelectasis from granuloma, and in a number of cases so-called granulation tissue was found at the opening of the bronchus. I was surprised, on reading the abstract in the program, to see the array of tumors mentioned. I wondered whether there was anything left, but I noticed that tuberculoma was not mentioned. I have seen two cases in the trachea and one in the bronchus. In the last six weeks I have seen two cases that looked like simple granuloma blocking the lung and producing abscess of the lower lobe; both were found to be malignant. These cases are very important from the standpoint of secondary changes. I am glad that the authors have brought up this subject because of that point, because more tumors of the lung, both benign and malignant, are being seen, and because of the fact that bronchoscopy is being done in many more cases. I am asked frequently by the internists to perform bronchoscopy in these cases, where as formerly I had to beg for that privilege. The pediatrician is also asking us to examine children by means of bronchoscopy.

DR. F. W. KONZELMANN, Philadelphia: It is my opinion at this time that some of these tumors are entirely inflammatory but that a few may be neoplasms. In the first case presented, a bloody, tumor-like mass developed in the lumen of the bronchus. Grossly the tumor resembled granulation tissue, such as one sees in healing, chronically infected wounds elsewhere in the body, spoken of commonly as proud flesh or, better, as exuberant granulation. In the illustration in case 4 the dark irregular streaks represent engorged new-formed capillaries; between them there are many leukocytes of all descriptions. Specimens removed at various intervals varied somewhat in their structure. In the more recent biopsy material, epithelial-lined spaces were noted resembling somewhat collapsed lung. The idea of atelectatic lung extending through the bronchus was abandoned because there was no perforation, and after removal of the tumor the wall of the bronchus was intact. In case 8 the flat irregular spaces lined by cells with pyknotic nuclei constitute a structure to which a somewhat analogous one is seen in intravascular thrombi, in which endothelium lined spaces which canalize the thrombus. Again, it is seen in inflammatory processes in the cervix of the uterus, where the surface epithelium dips into the newly formed connective tissue, producing irregularly shaped glandlike spaces. It is my opinion now that these lining cells are derived from bronchial epithelium. In case 9 a number of specimens show exactly this histologic structure. Here again the spaces are lined by cells with pyknotic nuclei, cells that are definitely unhealthy. Case 7 is more perplexing. The cells lining spaces like those just described are better preserved; they are more robust and more numerous and react to the stain as living potent cells. I believe they are the result of an inflammatory process just as in the two previous cases. But cells possessing the ability to grow so abundantly, yet lacking the power of complete differentiation, arouse suspicions of malignancy. After removal of this tumor, the wall of the bronchus seemed quite smooth, and the wound healed promptly. It is reasonable to suppose that if it was a tumor it will recur. Similar lesions have been described in the literature as "adenoma." I do not believe they have been studied with sufficient intensity or observed long enough for any one to determine their true nature. Until more evidence is available, it seems best to speak of them as chronic inflammatory processes plus epithelial hyperplasia. If the question of neoplasm is left unanswered, interest in the subject will be kept alive and statistical studies will not be rendered valueless by the inclusion of improperly classified lesions.

DR. EUGENE R. LEWIS, Los Angeles: Six years ago I reported four unusual experiences with tumors which I had watched as they subsided under systemic treatment only. These were fibrotic polyps occurring in the nasal and aural regions. Four years ago I presented at the annual clinical meeting of the Los Angeles Eye, Ear, Nose and Throat Society a series of four fibromatous polyps which had completely obturated the external auditory canals. These all disappeared spontaneously on systemic treatment only. This year I was able to show five tumor cases which were even more significant as to the possibilities of nonsurgical methods of dealing with tumor formations. There were two cases of large postnasal fibroma, one of which was pedunculated, one sessile. The pedunculated mass originated in the upper and back part of the nose. It had been removed before the patient came under my care three times since 1928, each recurrence after about six or eight months. Under systemic therapy alone the mass completely disappeared. In order to test these measures further I reversed the order of the systemic measures that had apparently effected this disappearance; this reversal was followed by the reappearance of the tumor. When the original systemic regimen was reapplied, the mass again disappeared. The sessile nasopharyngeal fibroma had almost completely disappeared under systemic measures when I left for this meeting A similar result occurred following such treatment of osteoma in a woman, aged 45. The growth had largely obturated the external auditory canal. The tumor was seen by a number of my Eastern colleagues; in the course of six or seven months it completely disappeared under systemic treatment only. The bearing of these experiences on the subject presented by the authors seems to me pertinent. A number of cases of disappearance of papilloma in and around the glottis under systemic

measures have been reported in recent German literature following systemic use of magnesium oxide.

DR. CHEVALIER JACKSON, Philadelphia: I have nothing more to add. Those who are interested can look down the bronchoscope at a fairly good imitation of these growths as they are seen endoscopically by visiting the Scientific Exhibit.

THE SELECTION OF TREATMENT FOR CARCINOMA OF THE LARYNX

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AND
ELEANOR FLETCHER, M.D.
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ROCHESTER, MINN.

In the selection of treatment for carcinoma of the larynx by either a conservative or a radical operation, one should utilize every means at hand in an effort to conserve the voice, but primarily effect is directed to permanent elimination of the disease. The perfection of any particular type of surgical technic must not be permitted to outweigh the special requirements of the individual case. In order to administer the best possible surgical treatment in these cases, the surgeon should be familiar with the types of growth, the more common situations of the early growths, the grading of malignancy and the mode of extension.

STUDY OF SPECIMENS

The microscopic grading of carcinoma is a valuable aid in determining the best treatment and also the prognosis in any given case. The microscopic extension of different grades of carcinoma of the larynx was studied in 100 specimens taken at laryngectomy in the last six years. Specimens for microscopic examination were taken at various points anterior to, posterior to,

Fig. 1.—Specimen removed at laryngectomy of squamous cell epithelioma, graded 1. The size and the papillary character of the tumor may be noted.

above and below the growth, inside and outside the laryngeal cartilages and in the cricothyroid membrane. Sections were first made at 5 mm. from the apparent margin of the growth. If carcinoma was found at this point, then sections were made at 10 mm., and if these were found to be malignant, sections were taken at 15 mm. from the apparent margin of the growth (figs. 1 and 2). Seventeen per cent of the specimens showed erosion of the thyroid cartilage due to the carcinoma. In 8 per cent of the specimens the carcinoma was seen spreading through the cricothyroid membrane, but the thyroid cartilage was not eroded. The maximal extension of highly malignant carcinomas from the apparent margin of the growth was 15 mm.; in low grade carcinoma the extension was not found further than 5 mm. from the apparent margin of the growth (table 1 and figs. 3 and 4).

The average degree of extension of the various grades of carcinoma revealed that in carcinomas graded

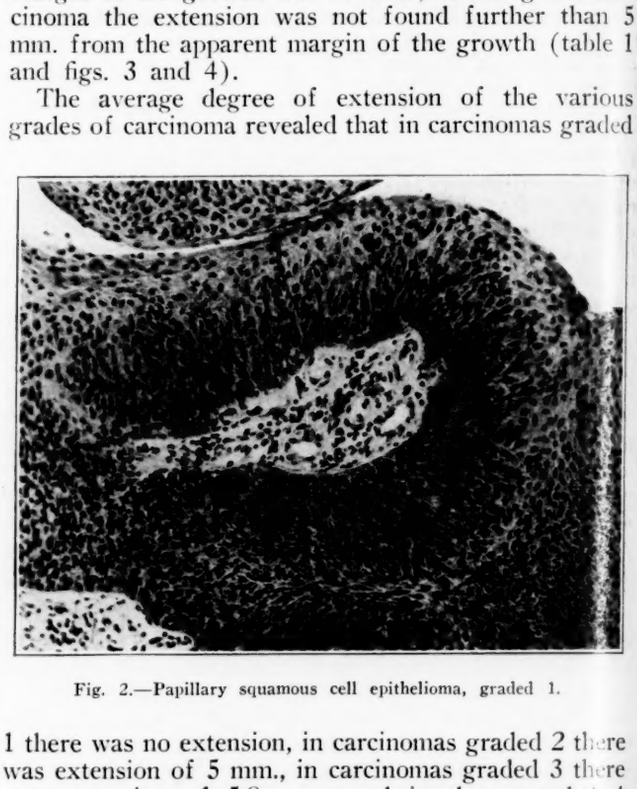

Fig. 2.—Papillary squamous cell epithelioma, graded 1.

1 there was no extension, in carcinomas graded 2 there was extension of 5 mm., in carcinomas graded 3 there was extension of 5.9 mm., and in those graded 4 there was extension of 5.6 mm. (figs. 5 and 6). The fact that the carcinomas graded 4 did not extend further locally may be due to their tendency to enter the lymphatic channels early without much local extension; thus, with a small primary growth there may be extensive metastasis. In one of our cases the carcinoma was a small, local growth which had metastasized early, and death occurred in five months. The specimen removed did not reveal local extension. The average extension of all grades of carcinoma was 5.5 mm. (figs. 7 and 8).

TABLE 1.—*Microscopic Extension of Carcinoma of the Larynx Beyond the Apparent Limits of the Growth*

Grade	Specimens	Extensions	Per Cent
1	2	..	....
2	31	6	19.3
3	53	22	41.5
4	14	11	78.5
All	100	39	39.0

It is generally believed that in performing laryngofissure for carcinoma an excision about 0.75 cm. from the apparent margin of the growth gives a fair margin of safety.[1] In many of the specimens we observed such excision would have been made into the growth.

The relation of the grade of malignancy to the duration of symptoms and the size of the growth is shown

From the Section on Laryngology, Oral and Plastic Surgery, the Mayo Clinic.
Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

1. Thomson, St. Clair, and Colledge, Lionel: Cancer of the Larynx, New York, the Macmillan Company, 1930, pp. 244.

in table 2. Tumors graded 1 attain a larger size than those of other grades, as the gradual increase in size does not produce alarming symptoms.

THE RELATION OF BIOPSY TO EXTENSION

In all cases in which the condition is not self-evident, biopsy is done immediately before operation. We have never seen any ill effects from this; however, in cases of carcinoma of the larynx in which biopsy has been made with some trauma and without being followed by operation before the patient came to the Mayo Clinic for examination, the seriousness of the condition seemed to be enhanced, and it was in this group of cases that recurrence was most common. An attempt has been made to determine the relation of biopsy and the delay in removal of the growth to microscopic extension of the carcinoma. It was found, in reviewing the number of extensions from the various grades of tumors observed in specimens from the cases in which biopsy had been done elsewhere and operation delayed and in the specimens from cases in which biopsy had not been done, that the difference in the two groups was

Fig. 3.—Squamous cell epithelioma, graded 2, which has extended through into the base of the tongue.

not outstanding. In twenty-nine cases in which biopsy had been done and surgical intervention had been delayed there were thirteen (44.87 per cent) extensions. In the seventy-one cases in which no biopsy was made there were twenty-six (36.6 per cent) extensions. In the twenty-nine specimens for biopsy there were nine

TABLE 2.—*Relation of the Grade of the Tumor to the Average Duration of Symptoms and the Average Size of the Growth*

Grade	Cases	Average Duration of Symptoms, Months	Average Size, Cm.
1.....	2	39.0	4.5×3.75
2.....	31	22.4	2.34×1.79
3.....	53	10.6	2.66×2.05
4.....	14*	9.6	3.15×2.16

* Two cases of indeterminate duration.

carcinomas graded 2 from which there was no extensions. In considering the high grade carcinomas as a group, there were twenty cases in which biopsy was done with thirteen (62 per cent) extensions. In forty-seven cases of high grade carcinomas in which biopsy was not done there were twenty (42.5 per cent) extensions. However, several factors must be considered in comparing these two groups. In many of the cases biopsy was done without trauma, and it was the delay in operation alone that may have been the major factor in the increase in the number of extensions. The infection secondary to the trauma, if this is marked, probably is significant in the increased seriousness of cases in

Fig. 4.—Squamous cell epithelioma, graded 2, in deep lymphatic structures beneath normal mucous membrane.

which biopsy is done. It should be emphasized, however, that in carcinoma of the larynx biopsy should not be done until the surgeon who is to operate on the patient has made a careful examination, and until the patient is ready and willing to go ahead with the radical operation if the condition is found on biopsy to be malignant.

TREATMENT

Patients with operable carcinoma of the larynx whose general condition does not prohibit surgical procedures

Fig. 5.—Squamous cell epithelioma, graded 3, which has extended to the aryepiglottic fold and postcricoid region.

usually may be placed in one of seven groups, depending on the individual requirements. We believe that such selection of patients is most important in order to obtain the best results.

Group 1: Suspension and Removal with Diathermy.—In low grade carcinomas of the epiglottis and aryepiglottic fold which are sometimes pedunculated, treatment by means of preliminary tracheotomy and then removing the growth, using the Lynch suspension apparatus and a protected diathermy point, is a satisfactory procedure (figs. 9 and 10). In foreign countries many of these patients are treated by lateral pharyngotomy by means of the Trotter method with excellent results. The results in our cases by the method we have outlined have been quite satisfactory, owing to the low grade type of lesion and the excellent access obtained by means of laryngeal suspension. Lateral pharyngotomy in this group of cases should be limited to the larger tumors that cannot be taken care of in this conservative way.

Group 2: Thyrotomy and Removal.—In early carcinomas involving the anterior two thirds of the vocal cord without fixation, thyrotomy, surgical removal and destroying the base with surgical diathermy are advisable. If the growth affects both cords anteriorly and the anterior commissure and the grade of malignancy is low, removal by the method of Jackson will give good results. If the grade of malignancy is high, it is almost necessary to approach it too closely for safety, and a more radical operation is advisable, as is carried out in cases of group 3. Cases for thyrotomy should be carefully selected, as to both type and extent of growth, since in the highly malignant cases in which recurrence follows laryngofissure results are not satisfactory with laryngectomy. In two of our cases of carcinoma graded 2 in which laryngofissure had been done originally, the growth recurred and laryngectomy was done secondarily. At the time of the laryngectomy the carcinomas were graded 3. The grade of the malignancy may have been stepped up by the operation in these cases.

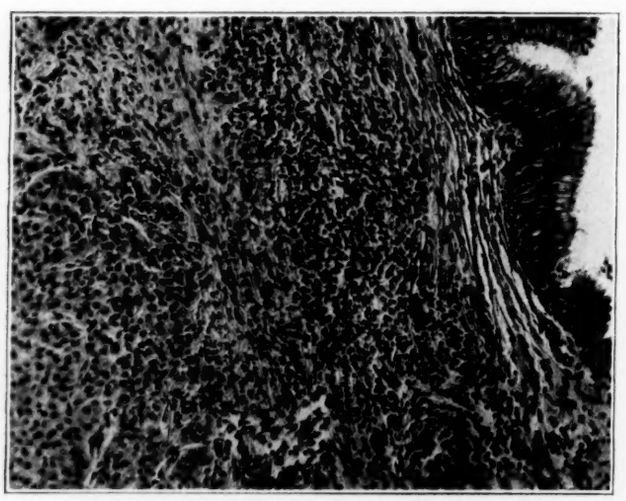

Fig. 6.—Squamous cell epithelioma, graded 3, beneath normal mucous membrane in lymphatic structures.

Group 3: Thyrotomy and Removal of the Growth and Cartilage.—In the group of cases in which the growth is fixed in the anterior portion of the cord on one side or in the anterior commissure, thyrotomy and removal of the cartilage along with the growth and destruction by diathermy are advisable. Thomson [1] has obtained excellent results by removing the cartilage and then the growth, but this operation is more radical than necessary in many of the cases of low grade malignancy. Of thirty-two specimens in which carcinoma could be demonstrated inside the cartilage, there were eleven in which the growth was also present outside the cartilage, so that in many cases even with unilateral involvement this type of operation is too conservative and laryngectomy should be done.

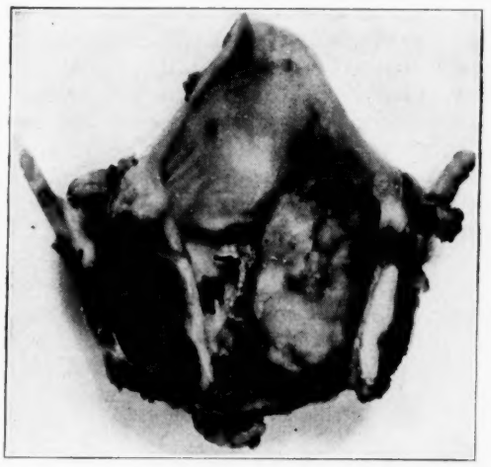

Fig. 7.—Squamous cell epithelioma, graded 4. The polypoid character of the tumor may be noted.

Group 4: Laryngectomy.—This procedure should be used in the more extensive cases. It should not be limited to the so-called intrinsic cases, as many growths that have extended through to the base of the tongue, on to the lateral wall of the pharynx, through the thyroid cartilage, into the postcricoid region or through the cricothyroid membrane may be removed with a good chance of permanent cure. In general, laryngectomy should be done for highly malignant lesions, unless incision can be made sufficiently wide around the growth to insure that there will be no local recurrence; it should also be done for lesions of low grade malignancy that are too extensive for laryngofissure. Roentgenograms of the cartilage of the larynx preliminary to laryngectomy have some advantages, since if it is possible before operation to demonstrate erosion or perforation of the cartilage, it allows the surgeon to go well wide of the cartilage at the point of extension.

Group 5: Pharyngotomy.—This operation, by either the transthyroid method of Trotter or the subhyoid method, is valuable for many growths in the supraglottic region, particularly the more advanced growths of the epiglottis and aryepiglottic fold that cannot be taken care of by suspension and diathermy. The local lesion may be destroyed with surgical diathermy or removed surgically, leaving the patient with a good voice. The wound in the neck may be closed primarily. The use of lateral pharyngotomy in postcricoid carcinomas of young women in whom the growth is almost always highly malignant has been shown to produce some good results in the hands of Trotter and Colledge. We see so few patients in this group, in whom there is not marked cervical involvement, and therefore seldom employ lateral pharyngotomy in their treatment. Since carcinomas of low grade sometimes occur in this region, it would be of interest to make microscopic studies of tissues from Trotter and Colledge's patients who have remained well. We have observed a patient who had been treated by roentgen rays for an extensive postcricoid carcinoma. The growth had entirely dis-

appeared, and the patient has remained well a year with no recurrence. Mollison [2] recently reported the case of a similar patient who remained well for four years without recurrence.

Group 6: Cervical Metastasis.—Removal of the glands of the neck in connection with carcinoma of the larynx must depend on the extent of the local lesion, the extent of cervical metastasis and the grade of malignancy. If the lesions are of low grade malignancy, in which the glands are hard and shotty, removal of the glands offers the patient a good chance of freedom from the disease. If the lesions are of high grade malignancy and the glands are soft and diffuse and of short duration, little will be accomplished in a permanent way by dissection. Much more can be accomplished in the latter group by irradiation. The removal of the glands of the neck may be associated with any of the operative procedures outlined.

Group 7: Roentgen Rays and Radium.—These agents have a definite place in the treatment of carcinoma of the larynx in conjunction with surgical measures and in inoperable cases. Much may be accomplished in a palliative way in cases of highly malignant lesions, but we have never seen any permanent good results from this method of treatment. Harmer and Finze [3] and Portmann,[4] however, have recommended removal of the thyroid cartilage and insertion of radium. Lewis [5] advised the use of preoperative and postoperative irradiation, combined with surgical measures. We irradiate before and after operation in cases of carcinoma of the lips, tongue, and so forth, but have not found that preoperative treatment aided in stopping the growth. If the condition is surgical, the glands of the neck are removed, and if they are involved, irradiation follows. If the condition is not surgical, then radium is inserted into the glands by means of radon or radium points, and external irradiation is used. The use of radon and the radium points in extensive cases at the time of removing the growth aids considerably to prevent recurrences. Inoperable carcinomas of the larynx of high grade malignancy with cervical involvement sometimes almost completely disappear with irradiation, and it is doubtful whether secondary surgical measures will accomplish any more than the irradiation alone. Operable carcinomas of grade 4 without cervical involvement should be irradiated over the cervical region before and after laryngectomy.

Fig. 9. — Epithelioma of the epiglottis.

Fig. 10. — Drawing made after operation. The stump of the epiglottis is shown.

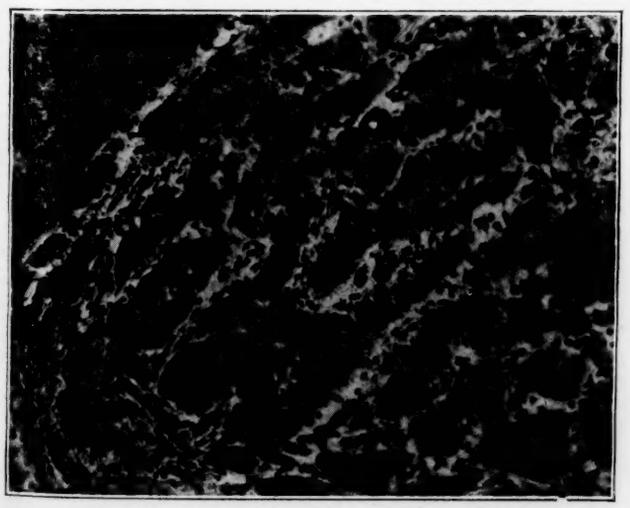

Fig. 8.—Squamous cell epithelioma, graded 4, in lymphatics.

RESULTS

The results in the surgical treatment of carcinoma of the larynx demonstrate that operation followed by roentgen rays or radium offers the best method of combating the disease. In a selected group of forty-one cases in which thyrotomy was done, the percentage of recurrences was only 13 in from three to six years.[6] The patients retained a fairly good speaking voice. The objective of educational measures among physicians and the laity should be to bring patients for consultation early enough so that this type of operation can be employed.

The operative mortality in the hundred cases of carcinoma of the larynx from which specimens were removed at laryngectomy for study was 8 per cent. In the last thirty-six cases there was only one operative death. We were able to trace 86 per cent of the hundred patients; 52 per cent of these were alive and without recurrence from three to six years after operation. Sixty-five per cent of those with carcinomas graded 3 are alive and well, 71 per cent of those with carcinomas graded 2 are alive and well, but all of those with carcinomas graded 4 are dead.

CONCLUSIONS

1. Extension of carcinoma of the larynx beyond the apparent margin of the tumor, as demonstrated microscopically, has a definite relation to the malignancy of the growth.

2. The selection of patients with carcinoma of the larynx for a conservative or radical operation should be based on the special type of lesion in addition to the usual considerations.

3. Surgical measures associated with irradiation offer these patients a good chance of freedom from the disease.

2. Mollison, W. M.: Hypopharyngeal Carcinoma Treated by Deep X-Rays: Freedom from Recurrence for Four Years, Proc. Roy. Soc. Med. **25**: 448 (Feb.) 1932.

3. Harmer, Douglas, and Finze, N. S.: Radium Treatment of Intrinsic Carcinoma of the Larynx, Practitioner **124**: 16-31 (Jan.) 1930.

4. Portmann, Georges: The Rôle of Surgery in the Modern X-Ray Treatment of Cancer in the Larynx, Tr. Am. Laryng. A. **49**: 90-98, 1927.

5. Lewis, F. O.: The Treatment of Extrinsic Cancer of the Larynx, Tr. Am. Laryng., Rhinol. & Otol. Soc. 1929, pp. 85-88.

6. New, G. B.: The Status of Thyrotomy for Carcinoma of the Larynx, Ann. Otol., Rhin. & Laryng. **40**: 360-366 (June) 1931.

ABSTRACT OF DISCUSSION

DR. ALBERT C. BRODERS, Rochester, Minn.: I suppose as a surgical pathologist I should feel out of place in appearing before a body of specialists, but I can truthfully say that some of the most interesting pathologic processes in my experience have come from the anatomic regions in which laryngologists are interested. Furthermore, in the grading of carcinomas, which is one of my "pets," the work was first done on cancer of the lip. It has long been known from a clinical standpoint that cancer varies in malignancy; it has also long been known that papillary cancer or carcinoma that grows into the lumen of an organ is less malignant than one that is flat and infiltrates the wall. The grading of cancer is based on the principle of cell differentiation. Von Hansemann in the early nineties pointed out that apparently normal cells by the process of dedifferentiation or anaplasia become malignant. The grading of malignancy of cancer is the practical application of von Hansemann's theory. Carcinomas have been divided into four grades. The cells in grade 1 show the greatest tendency to approach the normal and are therefore the least malignant, while those of grade 4 have deviated furthest from the normal; in other words, the latter are more anaplastic and represent the highest degree of malignancy. I have a section which I have shown all over the United States of squamous cell cancer of the lip and cheek. This is not a cancer cell, but one which by the process of differentiation or keratonization has ceased to exist as a cancer cell and is now nothing but a spherical body, a keratone. You can see other cells in the process of differentiation. Studying cells of that type gave us the idea of cancer self control. In other words, cancer in which the cells show a tendency to differentiate into normal structures must be putting on the brakes, or exerting self control. I have been much interested in the work of Drs. New and Fletcher, for the simple reason that in studying cancer in general from the standpoint of grading I have found that the grade of malignancy is in direct proportion to the proliferative, infiltrative, metastasizing and lethal capacities of a cancer. Their work is of practical value from a therapeutic standpoint since it shows that the extent of infiltration of cancer of the larynx is practically in direct proportion to the grade of malignancy. I am also interested in this work because it relates to something that we believe, and which has not been proved—that cancer as it goes into malignancy shows a greater tendency to infiltrate the structures beyond the apparent margin of the growth, not only the connective tissue but also the lymphatics. Carcinoma of the tonsil is very malignant. As a matter of fact, about 90 per cent of the carcinomas of the tonsil, of the nasopharynx, of the esophagus, of the vagina, and of the uterine cervix fall within grades 3 and 4.

DR. WILLIAM V. MULLIN, Cleveland: Drs. New and Fletcher have contributed research on cancer of the larynx which helps remove doubt concerning the efficacy of various forms of treatment. It shows that generally the breach between the surgeon and the pathologist is too wide and that any surgeon who can make or have made a thorough pathologic study of tissue removed at biopsy has a better insight as to the kind of growth present and a decided advantage in giving a prognosis and in advising the proper treatment. This research helps to elucidate the question concerning biopsy. That there was extension of the growth in 44.87 per cent of the cases in which biopsy was done and operation delayed, and extension in 36.6 per cent of cases in which no biopsy was done, is interesting, for this difference is negligible. The question as to whether or not biopsy should be performed gave me enough concern that some years ago I wrote a paper entitled "Diagnostic Limitations in Laryngology," which was read before the American Laryngological Association. Now, if I could have the advantage of Dr. Broders' study of the sections, with the patient's consent, I would advise immediate operation in every case. But there is the difficulty—many pathologists do not grade carcinomas as Dr. Broders does. The seven groups into which the authors place patients as regards the proper treatment indicated may be a valuable guide. In his series, it was possible to follow the patients and to have complete pathologic study of the sections in 86 per cent of the cases. Of this group 65 per cent of those with grade 3 carcinomas are alive and well, 71 per cent of those with grade 2 are alive and well, but all those with a pathologic diagnosis of grade 4 carcinoma are dead. This, together with the statement that in the group with grade 3 carcinoma there was an average extension 5.9 mm. from the apparent margin of the growth, and in the cases graded 4 there was an average extension of 5.6 mm. would indicate that the grade of the malignancy, rather than the type of treatment, has the greatest influence on the eventual outcome. All have seen this illustrated clinically. Last fall I analyzed and followed up ninety-nine cases of carcinoma of the larynx. I found that in 51 per cent the growth was inoperable at the time the patient first came to the clinic. I wish that something could be done to make possible an early and precise diagnosis in cases of chronic hoarseness before any type of treatment is instituted.

DR. JOSEPH C. BECK, Chicago: Dr. Broders showed the slide of a tonsil which would make one believe that there is no such thing as lympho-epithelioma of the larynx. There are European clinics reporting that lymphoid epithelioma and other types which do not fit in exactly with Dr. Broders' specifications, are highly radiosensitive. It is well known that grade 1 tumors are radioresistant, whereas grade 4 tumors are radiosensitive, particularly to radium, especially to efficient treatment with radium that, unfortunately, we do not have at our command as much as we should in the treatment by radium packs of lymphoid epithelioma and transitional epitheliomas that occur in the larynx. But, if they are reported, there must be cases even in grade 4 that are susceptible to treatment by irradiation. In the last three or four cases Drs. New and Fletcher did not do a biopsy because the patient would not consent. It is my practice to do the biopsy right on the table and then do the operation according to the biopsy. I am sorry that in this paper there was nothing said about the voice. The difficulty of selling a laryngectomy to a patient who is losing his voice is well known; and all know how much can be done by education in the use of an artificial larynx. I think there should be some means to demonstrate to the patient, perhaps by phonograph records, how he will speak when the laryngectomy is performed.

DR. GORDON B. NEW, Rochester, Minn.: Regarding the question of biopsy in carcinoma of the larynx, I feel that the surgeon who is going to operate should see the patient and talk the situation over with the relatives, so as to set the stage in order that the patient and the relatives may understand just what is to be done if the microscopic examination proves the condition to be malignant. It is frequently difficult to determine whether a laryngofissure or laryngectomy should be done in a patient who has had a biopsy with some trauma before one sees him in consultation. Recently Dr. Broders and I reported a large group of highly malignant tumors of the nasopharynx, pharynx and base of the tongue. Dr. Broders feels that these tumors are not lympho-epitheliomas but in reality grade 4 carcinomas. As a rule, it is not difficult to convince a patient of the necessity of laryngectomy, especially when one can assure him that he will be able to talk with an artificial voice box following the operation. In most patients it is necessary to use an artificial voice box to produce speech. Occasionally, patients are able to produce speech with the pharyngeal muscles. [Dr. New presented such a patient, who had a laryngectomy two years ago, and now talks as if he were hoarse but holds a position as a salesman. Speaking through a microphone, the patient, using the pharyngeal muscles to produce speech, was readily heard in the back of the meeting room.]

Psychoanalysis and Physicians.—Whether psychoanalysis is to be employed by physicians only is still a moot question. Personally, I believe that only trained individuals, preferably physicians, should be permitted legally to employ psychoanalysis for therapeutic purposes. I regard it as a thoroughly unsafe instrument in the hands of those whose sole claim to capability in employing the technic is the fact that they have undergone a personal analysis. The psychoanalytic technic cannot be regarded slightly. It involves an instrument that is sharp, that has two edges, and that is not without the possibility of inflicting injury when applied by those unskilled in its use and unaware of its limitations and contraindications.—Wile, I. S.: Psychoanalysis and Religion, *Mental Hygiene*, **16**:559 (Oct.) 1932.

RINGWORM AND TRICHOPHYTIN

NEWER DEVELOPMENTS, INCLUDING PRACTICAL AND THEORETICAL CONSIDERATIONS

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AND
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The relatively recent increase both in number and in gravity of the skin conditions known as dermatophytosis and dermatophytid has arrested the attention of the medical profession in general and that of the dermatologist in particular. Should the present trend continue, it is possible that the evolution of this malady may bring about a grave condition of affairs. One hesitates to predict the situation that may arise should the severe cases, fortunately only occasionally observed, become the rule.

The choice of the subject of the present symposium witnesses that this section is aware of the importance of this problem. It is time to marshal our forces to the combat, and a discussion of some of the immunologic aspects of the disease cannot be amiss.

In addition to a brief review of previous work, we intend to report some more recent aspects and as yet unpublished observations in this field. While certain of these observations are not sufficiently numerous for statistical compilation, we hope that they may serve as a guide for future steps, and the importance, not to say urgency, of the problem seems to justify their present publication.

PATHOGENESIS AND IMMUNOLOGY OF "IDS"

It is not our object to dilate on clinical description and pathogenic mechanism; concerning the former, we wish only to state that our communication deals primarily with what is best known as tinea or ringworm of the hands and feet (figs. 1, 2 and 3) in all its degrees and variations, including the accompanying generalized eruptions. Among the synonyms for tinea are dermatophytosis and dermatophytid, epidermophytosis and epidermophytid and dermatomycosis. The older names of some of the hand eruptions were cheiropompholyx of Hutchinson, exfoliatio areata manuum of Alexander, keratolysis exfoliativa, eczema manuum, and dyshidrosis of Tilbury Fox. Concerning the clinical as well as the immunologic factors and pathogenesis of the dermatophytids, we refer to the articles by Bloch [1] and Miescher.[2] An excellent review of some of the factors has also been published recently by Peck.[3] It is of importance, however, that certain fundamental processes be here recalled. The now more or less generally accepted view of the process in the development of a dermatophytid is the following:

Fungi originating from a focus or from foci of infection (toe nails, between the toes) can enter the blood stream, be distributed to and remain in various organs and there cause no disturbance. The animal experiments of Werner Jadassohn [4] and of Sulzberger [5] as well as the subsequent observations in human beings by Peck [3] support this theory. The fungi distributed to the skin do not cause any pathologic change in that skin unless the reactivity of the tissue has been altered (allergy). The thus altered skin (probably after rapidly killing the fungi) reacts to their products with inflammation. This inflammatory reaction is what is seen in the conditions called dermatophytids, in contradistinction to the primary foci of infection, which are called dermatophytoses. From this exposition it is obvious that the area of dermatophytosis can be full of fungi while the lesions of the dermatophytid contain no living organisms. Such is usually the case.

In the immunologic study of the "ids," a substance called trichophytin is employed. This substance, essentially a vaccine of fungi, is used to demonstrate the altered reactivity of the skin, which, if the theory holds, must be present in cases of dermatophytid. As a matter of fact, the overwhelmingly large majority of cases react to intradermal injection of trichophytin with an inflammation not to be observed in normal individuals who have had no prior contact with fungi. (Certain analogies with tuberculin and tuberculous infection are here very marked.[6])

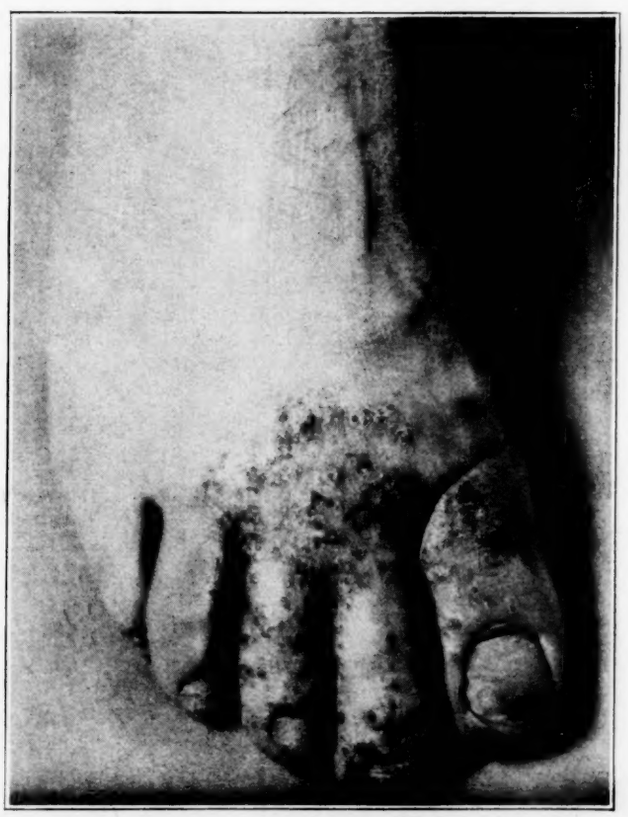

Fig. 1.—Scaling eczematous type of ringworm of foot (dermatophytosis).

While this altered skin state as demonstrated by the reaction to trichophytin has been known for many

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6. Sulzberger, M. B., and Wise, Fred: Tuberculin: Newer Developments in Its Dermatological Employment and Reasons for Its More General Use in Diagnosis, M. Clin. North America, May, 1931, p. 1556. Jadassohn (footnote 1).

years in deep tinea infections of the hair and their accompanying "ids," it was not until quite recently that Williams [7] conceived the idea that the hand eruptions we have mentioned might be the "ids" from foci of tinea infections of the feet. The work of other observers [8] subsequently bore out the conception of Williams, and Jadassohn and Peck [9] showed that the

Fig. 2.—Vesiculobullous dermatophytid of the hand.

intradermal injection of trichophytin regularly produced reactions in the patients suffering from the hand and foot condition referred to.

ECZEMATOUS "ID" ERUPTIONS DUE TO FUNGI

There was, however, one point which was not yet clear. All previously known tinea "ids" were generally papular, lichenoid and follicular. The classic dermatophytid of the hands and body, caused by dissemination of the fungus generally infecting the feet, is in appearance usually a vesicular or bullous, scaly or hyperkeratotic eczema. Sulzberger and Lewis [10] were able to show that the skin reaction in these conditions was actually an eczematous one; a large number of patients with dermatophytosis and dermatophytids of the hands not only react with inflammation to the intradermal injection of trichophytin but also give a reaction to the application of trichophytin to the uninjured skin by means of a patch test; [11] at the site of the application, an eczematous dermatitis appears (fig. 4).

The dermatophytid is therefore an eczematous eruption, probably of hematogenous origin, in a skin hypersensitive to the fungous products.

This experimental verification of the existence of such eczemas is important for several reasons, not the least of which is that it demonstrates that the products of living organisms can cause dermatitis of eczematous type. Thus it may help to clarify the conception not only of the dermatophytids but of many eczematous forms of moniliasis, oidium or other infections, as well as the condition known as infectious eczematoid dermatitis. (Subsequent to the work of Sulzberger and Lewis, but independently, Ramel and Benziger [12] demonstrated the existence of eczematous sensitiveness to oidiomycetes by means of patch tests with oidiomycine.) In addition to the demonstration of the existence of eczematous hypersensitiveness to fungous products, it was hoped that the use of trichophytin patch tests might help to differentiate between the eczematous eruptions of the hands due to fungi and those due to external irritants (occupational dermatitides and the like). As these conditions often resemble one another to a baffling degree clinically, the practical importance of such a test is obvious. This direction of investigation has not been followed sufficiently intensively for us to be able to state whether such a practical test can be developed. At present there exists no absolutely certain method of proving that an eruption on the hands is an "id" and not due to an external irritant. All the fungus tests known might be positive in a patient having a dermatitis venenata or occupational eczema of the hands, provided there coexists a focus of fungus infection on the feet or elsewhere. With the almost unbelievably widespread existence of small foci of ringworm on the feet or in the toe nails, the various tests become more limited in their use. Their results can be weighed only with the strictest critical analysis and by those having a wide experience in all the difficulties and contradictions to be expected in the immunologic studies of skin reactions.

Fig. 3.—Eczematous "id" of the hands. Note the deep seated vesicles and eczematous scaling, probably showing an older and a more recent dissemination.

OTHER TYPES OF SENSITIVENESS TO FUNGOUS PRODUCTS

It is true that the eczematous eruption is by far the most frequently encountered form of sensitiveness to the products of the fungi generally inhabiting feet.

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8. Jadassohn (footnote 4). Sulzberger (footnote 5).
9. Jadassohn, Werner; and Peck, S. M.: Epidermophytid der Hände, Arch. Dermat. u. Syph. **158**: 16, 1929.
10. Sulzberger, M. B., and Lewis, George: Trichophytin Hypersensitiveness Demonstrated by Contact Tests, Arch. Dermat. & Syph. **22**: 410 (Sept.) 1930.
11. Sulzberger, M. B., and Wise, Fred: The Patch or Contact Test: Its Uses, Advantages and Limitations, Arch. Dermat. & Syph. **23**: 519 (March) 1931.
12. Ramel, E., and Benziger, A.: Mikrobisches Ekzem, Klin. Wchnschr. **9**: 2435 (Dec. 27) 1930.

Nevertheless, other types of skin eruptions have been described. These include, among others, erythema nodosum,[13] and recently urticarias due to trichophytin have been reported.[14] Not only the skin, however, but also other organs can become sensitive to trichophytin. Vasomotor rhinitis[15] and asthma[16] due to fungi exist. The possibility that one is dealing with such a case must be borne in mind in otherwise inexplicable cases of perennial asthma and hay fever. The allergen of which we speak is ever present, be it in some minute focus in the patient himself or in those with whom he is in contact. It must be remembered that a small, scarcely noticeable discoloration of a toe nail might contain thousands of the causative germs. It is therefore our opinion that trichophytin scratch or intradermal tests, performed in the usual manner employed in testing urticarias, asthmas and hay fevers, could well be added to the routine procedure of the practicing allergist and hay fever and asthma specialist. Today we can state with certainty that there is a true allergy to the products of the fungi. This statement is borne out by the fact that specific circulating antibodies are present in the serums of certain individuals, and that these can be demonstrated by passive transfer according to the method of Prausnitz and Küstner.[17] These facts all make it seem possible that a certain number of cases of allergic conditions may be due to allergens emanating from the foci of tinea infection. How frequent a cause these may be can be ascertained only through testing with trichophytin the skins of large series of allergic patients.

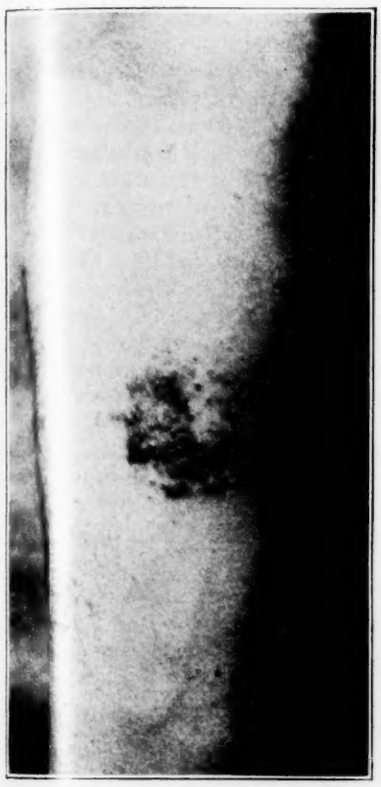

Fig. 4.—Trichophytin patch test. Site forty-eight hours after application. Note typical follicular vesicles.

DESENSITIZATION EXPERIMENTS

Three facts to which we have referred made it seem necessary to attempt desensitization with trichophytin, as a therapeutic measure: 1. The number and severity of cases of "ids" is increasing. 2. The hypersensitiveness to trichophytin is an allergic phenomenon and therefore capable of changes in the direction of sensitization and desensitization. 3. The hypersensitiveness to trichophytin almost regularly accompanies the dermatophytids; therefore, if the reaction of the skin to trichophytin can be favorably altered, this alteration may also affect the immunologic skin status necessary to the existence of an "id" and thus cure the eruption. Of course, the eventuality of increasing the sensitiveness of the skin and thereby causing eruptions of greater severity and unpleasant flare-ups and focal reactions had to be envisaged. We therefore proceeded with great caution in the manner to be outlined and were fortunate enough not to cause any serious reaction in a series of 100 patients who received trichophytin injections for test and other purposes. However, severe reactions can occur, and a long lasting, intractable, generalized, exfoliating dermatitis, an exudative and weeping generalized eczema, and even shock and fever can appear as sequelae of trichophytin administered in relatively small amounts. Here, as in all other immunologic procedures, it is impossible to err on the side of caution. It is essential to approach the possibility of stirring up the skin, with the same respect that one has in considering the possible stirring up of a tuberculous focus. The following instance is reported as an illustration of a relatively mild form of untoward result:

We recently saw a case in which two injections of trichophytin, which had been administered at another clinic, caused the previously unaffected hands of the patient to break out in a weeping, severe eczema, an eczematous dermatophytid to appear on the arms, thighs and legs, and the original foot lesions to become much increased in severity. The hands later presented a pronounced exfoliating desquamation of a scarlatiniform appearance and the feet showed intense crusting and weeping lesions. Pictures from this case are shown in figures 5 and 6. We have no way of determining the actual quantity of trichophytin given, but we have observed flare-ups of a lesser degree following the administration of very small amounts. The appearance of the hands recalls the fact that some of the "ids" observed have so closely resembled scarlet fever that that diagnosis has been given by competent pediatricians and dermatologists, and it is our belief that some cases of dermatitis exfoliativa may be a form of generalized "id."

Fig. 5.—Focal flare up of foot lesions following intradermal injection of trichophytin in a hypersensitive patient.

13. Bloch, Bruno, in Handbuch der Haut- und Geschlechtskrankheiten, p. 583 and following.
14. Sulzberger, M. B., and Kerr, Phyllis: Trichophytin Hypersensitiveness of Urticarial Type, with Circulating Antibodies and Passive Transference, J. Allergy **2**: 11 (Nov.) 1930.
15. Wise, Fred; and Sulzberger, M. B.: Urticaria and Hay-Fever Due to Trichophytin, J. A. M. A. **95**: 1504 (Nov. 15) 1930.
16. Ramirez, Maximilian: Trichophytin Sensitization: Case Report, M. J. & Record **132**: 382 (Oct. 15) 1930.
17. Demonstrated by Sulzberger and Kerr (footnote 14) and by Ramirez (footnote 16).

The method that we adopted in our attempted desensitizations with trichophytin is as follows:

Three types of trichophytin were employed: one that was kindly placed at our disposal by Professor Bloch of Zurich (derived from Achorion quinekeanum), one the purchasable trichophytin of Metz (from numerous different types of fungi), and one made by us from a strain of Epidermophyton interdigitale. The preparations were diluted until they were of

Fig. 6.—Scarlatiniform exfoliation of the hands in patient in whom trichophytin injection was followed by appearance of "id" (the same patient as in figure 5).

equal strength in biologic effect. The standard was equivalent in strength to a 1:30 dilution of the trichophytin of Metz.

As a first injection, about 0.05 cc. of the standard concentration was injected into the skin of the patient as superficially as possible. The site was observed at intervals of from twenty-four to forty-eight to seventy-two hours and, if the reaction was severe, either the same concentration or one of less strength was given. This was administered when the first reaction had almost disappeared. In the average case it was possible to inject at intervals of from four days to one week, and gradually to increase the amount administered until doses of 0.4 cc. were given at each treatment. This amount could be given intradermally by injecting four sites, each receiving 0.1 cc. of the solution. We never exceeded the amount of 0.4 cc. and never increased the concentration of trichophytin beyond the equivalent of 1:30 Metz.

When a patient showed absolutely no signs of reaction to the maximum amount and concentration administered, so that only the needle mark could be seen forty-eight hours after the injection, and when there was no sign of redness or infiltration at the site, we considered him desensitized (fig. 7).

In judging the results which we report, it must be borne in mind that it is possible that our failures might be turned to successes through increase beyond the dosage given or through other variations. The method pursued is but a groping attempt to find out something about trichophytin desensitization, and it was necessary to standardize the procedure.

The results of injections in nineteen cases are set forth in the table. These cases represent but a small fraction of those in which trichophytin was given in our office and at the clinic. They are, however, the only ones in which it was considered expedient to pursue trichophytin desensitization and in which the patient cooperated sufficiently to permit this form of immunization. They are not selected in any other sense but are reported regardless of the number of injections or their results. They may therefore be considered a fair index of what one can expect of this form of procedure. Cases 1 to 10 are from the practice of Wise and Sulzberger, and 11 to 18 from the New York Post-Graduate Clinic. In case 19 no attempt at desensitization was made. It is added to the list only on account of its interest as an example of urticarial trichophytin hypersensitiveness and vasomotor rhinitis and asthma following trichophytin injection. It is to be noted that these occurred in a patient with neurodermite.

An analysis of the table follows: The patients comprised sixteen cases of classic dermatophytosis and dermatophytid and two cases of generalized exfoliative dermatitis which were considered possible "ids." The duration of the disease prior to attempted immunization varied from one and a half years to fifteen years in the classic cases. One case of dermatitis exfoliativa had been present five months and the other seven years before being treated by us. Complete desensitization to trichophytin was achieved in eight cases (1, 2, 3, 4, 5, 16, 17 and 18); almost complete desensitization in five cases (11, 12, 13, 14 and 15), and partial desensitization in two cases (6 and 10). The sum of these figures shows that, in eighteen cases subjected to our method, it was possible to desensitize fifteen patients either wholly or partially.

In two cases no change in trichophytin reaction was observed (7 and 9). (Both of these patients unfortunately discontinued our treatment, one after only four injections and the other after nine.)

Fig. 7.—Trichophytin reactions following intradermal injection of trichophytin. This patient (Michael G., 16) later became completely desensitized. The two scaling sites are areas of reaction one week old and healing, having passed through various stages of eczematous dermatitis. Three fresh sites have just been injected and show the size of the wheal normally found in patients without immediate urticarial hypersensitiveness. This illustrates the fact that the immediate wheal reaction and the late inflammatory reaction are independent phenomena.

Patient 8 increased in sensitiveness up to the fifth injection and then refused continuation of this method.

Of the completely desensitized cases, seven (1, 2, 3, 5, 16, 17 and 18) were apparently either cured or markedly improved. Two of the cured cases were completely or only partially desensitized patients were markedly improved or cured; for instance, patients 11, 12 and 15.

Results of Injections of Trichophytin in Nineteen Cases of Ringworm

Patient	Localization	Duration	Procedure	Result	Comment
1. S. L. F.	Feet and inguinal regions	15 years	Local and injection (20 injections)	Desensitization complete; feet cured	Reactions became stronger up to fifth injection and decreased in strength from the fifth to twentieth injections; three of the injections were followed by focal exacerbations of the foot lesions
2. R. L. P.	Feet to ankles and hands; very severe "id" with vesicles	7 years	Local and injection (7 injections)	Desensitization complete in 5 injections; relapse and renewed sensitivity, which both disappeared after 2 injections	Had been treated by five other dermatologists without result; was free of lesions for 8 months for first time in 7 years
3. H. Gr.	Feet, hands, arms and trunk; very severe "id"	7 years	Local and injection (10 injections)	Desensitization complete in 3 injections; became sensitive again several times during treatment	Patient is also hypersensitive to wool fat and wool; through avoidance of contact with wool and wool products as far as possible, and after desensitization to trichophytin, skin has remained comparatively well
4. Leo S.	Feet and hands; very severe "id"	Over 5 years	Local and injection (9 injections)	Complete desensitization at ninth injection; no improvement of hands	Patient became hypersensitive in urticarial sense; developed large wheals at each injection but never got urticaria; Prausnitz-Küstner antibodies demonstrated in serum
5. M. Geff.....	Feet and hands	4 years	Local and injection (10 injections)	Complete desensitization at ninth injection	Hands cured except for one slight attack of vesicles, which rapidly disappeared; no recurrence in 5 months
6. Mrs. W.	Feet and hands	10 years	Local and injection (14 injections)	Only partial desensitization; hands somewhat improved; patient refused further injections	Reactions grew stronger from first to fourth injection (were very violent); from fifth to fourteenth injection they grew less strong and were very slight at last injection
7. M. J.	Feet and hands	2 years	Local and injection (4 injections)	No change	Patient refused further treatment
8. Dr. W.	Feet and hands	5 years	Local and injection (5 injections)	Sensitivity increased with each injection; lesions unchanged	Patient refused further treatment
9. H. Kah.....	Feet, hands and generalized severe "id"	Feet: 10 years; generalized eruption: 2 months	Local and injection (9 injections)	No desensitization or change	Skin eruption persisted in original force; patient also has immediate urticarial reaction to injection (wheal at site)
10. Murray K.	Feet and hands	4 years	Local and injection (8 injections)	Partial desensitization observed at eighth injection; hands unchanged	Patient probably malingerer (compensation case); could not be further treated by this method
11. Martha G.	Feet and hands	10 years	Injection only (17 injections)	Almost complete desensitization; hands cured and have remained well 7 months	Reaction grew less after three injections and became stronger again after fourth injection; this hypersensitive stage was accompanied by exacerbation of hand lesions; on further injection, desensitization and cure; patient tested with trichophytin after 7 months, still negative
12. John Naj.	Feet and generalized "id"	5 years	Local and injection (13 injections)	Almost complete desensitization; "id" cured and did not recur; feet only slightly improved	Patient developed urticarial sensitiveness to trichophytin but no urticaria; immediate wheal appeared at site of injection
13. Marty B.	Feet and hands	2 years	Local and injection (7 injections)	Almost complete desensitization; no improvement of hands	The same as in case 12
14. Vella Des.	Feet and hands	Not ascertained	Local and injection (8 injections)	Almost complete desensitization; no improvement of hands	Patient is a barber; occupational dermatitis must be considered in this case
15. Morton W.	Feet and hands	1½ years	Injection only (6 injections)	Almost complete desensitization; hands and feet improved and have remained well 8 months	Focal reaction of hand lesions after trichophytin; control trichophytin injection after 8 months
16. Michael G.	Feet and hands	Not ascertained	Injection only (9 injections)	Complete desensitization; hands well and remained so 6 months	After 6 months, patient returned voluntarily and requested further injections for a slight recurrence of lesions on hands
17. Oscar H.	Generalized dermatitis exfoliativa	5 months	Local and injection (17 injections)	Complete desensitization after 11 injections; cure of dermatitis exfoliativa; no recurrence when patient was seen after 9 months	Patch test and intradermal test with trichophytin were both positive when patient was first seen; all other skin tests were negative; trichophytin injections were followed by cure of skin condition; patient developed urticarial hypersensitiveness (immediate wheal) to trichophytin and has since had occasional attacks of urticaria
18. Hertz.....	Generalized dermatitis exfoliativa	7 years (recurring at irregular intervals)	Local and injection (more than 10 injections); no exact record kept	Complete desensitization; cure of dermatitis exfoliativa	Patch test and intradermal test with trichophytin were positive; after all other attempted therapy had failed, desensitization with trichophytin was followed by disappearance of generalized dermatitis
19. Mrs. W. H. C. ..	Generalized severe neurodermite	31 years	1 injection	.....	Patient reacted to 0.1 trichophytin with severe generalized urticaria and vasomotor rhinitis; the blood serum of this patient contained Prausnitz-Küstner antibodies which permitted the passive transfer of the trichophytin hypersensitiveness

those of dermatitis exfoliativa. In case 4 the pathologic condition continued unchanged in spite of apparent complete desensitization.[18] Several of the almost

In these results it is, of course, impossible to consider the effects as permanent, the longest period of observation being nine months after apparent cure. However, many of these cases have already had longer remissions than ever before, in spite of all manner of previous treatments, including x-rays. Three desensitized patients were retested with trichophytin about

18. We have since observed several cases of clinically typical "ids" which were negative to trichophytin. In two of these we were able to fix the blame on a monilia infection. It is probable that many different fungi can cause such eruptions. As trichophytins and monilias are not immunologically related, testing and therapy with mixed vaccines would seem indicated.

nine months after the last desensitizing injection. Two of these had remained completely desensitized and one reacted with only slight inflammation.

In cases 2, 5, 12 and 16, as well as in the two dermatitis exfoliativa cases, the results of this immunization seems to have been exceptionally fortunate.

Without wishing to go further in this analysis of results, and with full realization of the small number of cases studied, we still believe the following conclusions justified: 1. Injections of trichophytin may be administered without grave danger, provided the proper precautions are observed. 2. Continuation of injections makes it possible to desensitize a relatively large percentage of patients. 3. The method we have employed seems to meet with success in the treatment of a comparatively small number of cases. However, these permit the hope that modifications may improve the results. We consider the use of our present procedure limited to severe cases of long standing, which have proved refractory to other forms of treatment. It can be employed even then only if the patients will cooperate in the carrying out of the somewhat tedious process. Under these conditions the attempt seems not only justified but indicated. 4. The surprisingly good results in two cases of dermatitis exfoliativa may be only coincidences; nevertheless, all cases of this disorder should be tested with trichophytin and, if positive, we believe that desensitization should be attempted.

We realize that it is impossible to decide whether any of the results recorded are due to a specific immunologic desensitizing action of trichophytin or to a nonspecific therapeutic effect. While we incline strongly to the former view, we do not consider this question settled. Nevertheless, whichever may be the case, the attempt at desensitization was the logical step in consideration of the newer conception of the nature of "ids."

Heretofore, desensitizations with trichophytin have been attempted mainly in the deep seated tinea infections of the scalp and beard, in the hope that the resistance of the patient could be so increased that a cure even of these primary infections might be achieved. These attempts have practically all been abandoned as failures. This is because heretofore trichophytin therapy was found of benefit only in those forms which are prone to heal spontaneously in a rather short time, such as kerion Celsi.[19] Hence in our experiment we did not hope to be able to cure the primary foci of infection in the feet. Moreover, this is usually not the distressing part of the diseases that we are seeking to combat. Most of us walk about with our primary foci and do not even know of their existence unless a dermatophytid appears. It was our object to attempt to cure or prevent the "id." This seemed *a priori* much more promising of success than the efforts to treat primary infections by desensitization methods. The reason for this is obvious, for, while the primary focus might be able to exist without allergy, the altered or increased reaction of the skin is the sine qua non of the "id." It seems logical to assume that if this altered reaction can be changed in the desired way, the "id" will be cured. Although our method is now of only limited practical value, we still believe that the principle is correct and that the possibility of success lies in this general direction.

19. Bloch, Bruno: Allgemeine und experimentelle Biologie der Dermatomykosen, in Handbuch der Haut- und Geschlechtskrankheiten, pp. 353-355.

SUMMARY AND CONCLUSIONS

1. The recent increase in the number and gravity of tinea infections of the glabrous skin makes it expedient to consider their immunology and the immunologic means of combating them.

2. Trichophytin, a vaccine prepared from fungi, is used in these immunologic studies.

3. In epidermophytosis and epidermophytids (tinea infections of the feet, the hands and occasionally other parts of the body) the "ids" are secondary eruptions due to dissemination of the harmful agents from the primary focus. They are usually free from living fungi.

4. The "ids" in this form of tinea are most frequently of eczematous nature. This eczematous hypersensitiveness of the skin has been proved by patch tests.

5. Other forms of trichophytin hypersensitiveness exist; they include urticaria, hay fever or vasomotor rhinitis, asthma and perhaps generalized exfoliative dermatitis and other conditions. In consideration of this fact, trichophytin tests should be employed in investigating cases of the common allergic manifestations of unknown etiology. The fact that this particular allergen is almost ubiquitous makes such tests seem essential.

6. At least three different types of skin reaction to trichophytin tests have been noted: (*a*) the immediate urticarial reaction (with circulating antibodies); (*b*) the late inflammatory reaction after intradermal injection, and (*c*) the eczematous reaction to a patch test.

7. Demonstration of circulating specific antibodies has shown that certain types of trichophytin hypersensitiveness are allergic.

8. Since the dermatophytids are today usually the most important therapeutic problem in the common tinea infections (the actual foci are generally insignificant in extent) and since these "ids" are dependent on the hypersensitiveness of the skin for their existence, attempted desensitization therapy was indicated.

9. In eighteen cases of probable "ids," desensitization by means of intradermal injections of trichophytin was attempted. While complete or relative desensitization could be achieved in fifteen cases, only about two thirds of this number seemed benefited by the treatment, these showing either long remissions or marked improvement or apparent cure.

10. The method we have employed is by no means suitable for general treatment. At present, we can recommend it only as an ultimate measure in severe and refractory cases occurring in cooperative patients. Nevertheless, the results do not discourage further attempts in this direction. Modifications of our methods may improve the results.

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Climate and the Human Body.—It has been shown repeatedly that variations in climatic factors have an influence on the biological balance of the human body. In many instances this influence may not be strong nor clearly defined but nevertheless there seems to be a response on the part of the body to weather, and in the case of some diseases, deviations from the normal in bodily economy seem to be enhanced by fluctuations in weather factors. This is exclusive of incidence of infectious disease which may be affected directly by reason of the fact that the causative agent may require a specific kind of environment and be ineffective in any other.—Le Blanc, T. J., and Mills, C. A.: Epileptic Seizures in Relation to Daily Weather Factors, *Am. J. Hyg.* **16**:876 (Nov.) 1932.

THE MORTALITY OF ACUTE APPENDICITIS

A REPORT OF THE PROGRESS MADE IN A CAMPAIGN FOR ITS REDUCTION IN PHILADELPHIA

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In two previous communications [1] were published deductions regarding the cause of the increase in the mortality of acute appendicitis in Philadelphia. The first communication was based on an analysis of 1,002 clinical records of patients operated on in 2 hospitals in Philadelphia; the second on 5,121 clinical records in 27 hospitals during the years 1928 and 1929. The survey of these hospitals was authorized by the Department of Public Health. The result was published in the official bulletin of the Department together with a plan for the reduction of the mortality. The plan as outlined was put into operation by the Department of Public Health with the cooperation of the Philadelphia County Medical Society and the Philadelphia Association of Retail Druggists. Following the campaign the Department of Public Health conducted a second survey; 3,095 clinical records of patients operated on for acute appendicitis in 1930 in the same 27 hospitals and 1 additional hospital were analyzed. This report includes a summary of an analysis of these records and a comparison of the results obtained in the first and second surveys.

CLINICAL RECORDS

At least 6 persons and usually more had made entries on each clinical record abstracted: the attending surgeon, the pathologist, the intern, the anesthetist and one day and one night nurse. It is evident that the figures quoted and conclusions drawn are not absolutely accurate. But I believe them to be as accurate as possible. I know them to be correct in essentials. I know how many patients lived, how long they had pain, what was done before, during and after operation, how many died and why. The clinical records analyzed in 1930 show an improvement over those of 1928 and 1929, especially from the standpoint of stating the time of onset of the attack and the kind of laxatives administered. Table 1 discloses an interesting fact: an average age of 26.4 years for the 2 series of patients. In the first series of 5,121 cases 191 of the 3,023 males died, a mortality of 6.32 per cent and 115 of the 2,098 females died, a mortality of 5.48 per cent. In the second series of 3,095 cases 89 of the 1,769 males died, a mortality of 5.03 per cent, and 60 of the 1,326 females died, a mortality of 4.52 per cent. The increase in mortality after the age of 35 corresponds to the figures quoted by the Metropolitan Life Insurance Company.

TABLE 1.—*Deaths in Decades*

	1 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90
Cases	621	1,803	1,413	697	323	181	79	4	..
Deaths	42	61	48	58	42	34	19	2	..
1928-1929	6.8%	3.4%	3.4%	8.5%	9.9%	18.8%	25.5%	50%	
Cases	336	1,097	848	419	225	118	44	7	1
Deaths	13	31	21	26	27	19	9	3	..
1930	3.9%	2.8%	2.5%	6.2%	12.0%	16.1%	20.5%	42.2%	0

	Number Cases	Number Surgeons Operating	Average Age	Deaths	
				Male	Female
1928-1929	5,121	364	26.4	191	115
1930	3,095	338	26.4	89	60

MORTALITY

This study deals with hospital and not individual mortality. In 1930, 338 surgeons performed the operations reported, an average of 12 to each hospital. Prehospital management is the greatest factor influencing mortality. Surgeons cannot be blamed for an increasingly high mortality as long as 80 per cent of the deaths are due to a spreading peritonitis caused by delay and the administration of laxatives.

MORTALITY AND SEASONAL VARIATIONS

In each series the total number of admissions for the year were divided into four month groups. In 1928 and 1929 the highest mortality rate was in March, April, May and August; in 1930, in July, August, December and March. The highest mortality rate occurred during the summer months. The greatest number of cases were admitted during these months, but the percentage of patients admitted with peritonitis, especially spreading peritonitis, was greater.

TABLE 2.—*Percentage of Admissions*

	January to May	May to September	September to January
During 1928-1929	31.7	36.2	32.1
During 1930	31.2	35.0	33.8
Mortality, 1930	4.87	5.27	4.3
Peritonitis, 1930	32.40	34.57	33.03
Spreading peritonitis, 1930	30.47	35.39	34.14

PATHOLOGY AND MORTALITY

The 1930 survey shows a reduction of 7.28 per cent of the patients admitted with peritonitis: 42.73 per cent in 1928 and 1929 and 35.45 per cent in 1930. In 1928 and 1929, of the 306 deaths 77.5 per cent were due to spreading peritonitis, 18.75 per cent to local peritonitis and 3.75 per cent to other causes. In 1930, of the 149 deaths 83.22 per cent were due to spreading peritonitis, 7.38 per cent to local peritonitis and 9.4 per cent to other causes. The increase in the number of deaths from spreading peritonitis in 1930 is in part due to the placing of patients in this group whose condition on admission was diagnosed local peritonitis but who, following operation, developed a spreading peritonitis and died. The marked increase in deaths due to other causes, 9.4 per cent in 1930 as compared with 3.65 per cent in 1928 and 1929, is due to the increase in catastrophes. There were 14 deaths in this group; 11 were catastrophes. Five anesthetic deaths, 2 spinal and 3 general—1 ether, 1 gas and 1 gas and ether—all occurred on the operating table, except 1 spinal death which was delayed. There were 3 deaths from cardiac dilatation, 2 from pneumonia, 2 from pulmonary emboli, 1 from postoperative hemorrhage and 1 from nephritis. The earliest perforation recorded was four hours from the onset of symptoms to operation. There were no deaths from operation for acute appendicitis during pregnancy.

DELAY AND MORTALITY

The average time between onset of symptoms and operation in 1930 was reduced 11.81 hours as compared with 1928 and 1929. The decrease in mortality

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1. Bower, J. O.: Acute Appendicitis, J. A. M. A. **96**: 1461 (May 2) 1931; Am. J. M. Sc. **174**: 225 (Aug.) 1927.

in 1930 was 1.16 per cent. The percentage decrease in lapse of time between onset of symptoms and operation was 19.30 per cent, and of mortality, 19.43 per cent.

I again call attention to the importance of knowing that even in those cases that are admitted to hospitals within twenty-four hours, 1 out of 39 dies.

TABLE 3.—*Pathology and Mortality*

	Number Cases	Number Clean Cases	Peritonitis, Number Cases	Perforation, per Cent	Local Peritonitis, per Cent	Spreading Peritonitis, per Cent	Mortality, per Cent
1928-1929	5,121	2,921	2,200	42.73	68.26	31.74	5.97
1930	3,095	1,998	1,097	35.45	56.79	43.21	4.81

Tables 4 and 5 show how closely delay and mortality approximate each other. The greatest reduction in mortality occurred among patients admitted within forty-eight hours.

LAXATIVES AND MORTALITY

In the 1930 survey an effort was made to obtain not only a definite history regarding administration of laxatives but also the kind used. The notation "no history" in the following tables means that laxatives were not mentioned on the clinical record.

The close relationship between laxatives and mortality approximates that of delay and mortality with one exception; in 1928 and 1929, among those who received no laxative, 1 in 33 died; while in 1930, 1 in 80 died. I believe that the last is more nearly correct because of the improvement in the clinical records and the care taken in abstracting.

The following table shows the kinds of laxatives used with the number of deaths in each group. While

TABLE 4.—*Relation Between Delay and Mortality*

Year	Number Cases	Number Deaths	Mortality, per Cent	Time Between Onset of Symptoms and Operation, Hours	Time Between Onset of Symptoms and Operation, Hours	
					Recovery	Death
1928-1929	5,121	306	5.97	61.17	56.50	95.60
1930	3,095	149	4.81	49.36	48.67	68.05

the deaths in the spreading peritonitis group cannot definitely be attributed to laxatives, 91.6 per cent of those who died from spreading peritonitis in 1930 had received a laxative. Seventeen had taken castor oil; 13, multiple laxatives; 13, an unrecorded laxative; 9, citrate of magnesia; 9, epsom salts; 3, sal hepatica, and 3, milk of magnesia. Among those who received multiple doses of laxatives, castor oil and salts, and mild mercurous chloride and citrate of magnesia were given most frequently.

SPREADING PERITONITIS

The term spreading peritonitis is used in this article instead of general peritonitis. An explanation for this change in nomenclature follows:

Less than 5 per cent of patients suffering with appendicitis and peritonitis were admitted to the hospitals of Philadelphia with this diagnosis regardless of the fact that 42.7 per cent in 1928 and 1929, and 35.45 per cent in 1930, had an associated peritonitis on admission. The word local is definite in its meaning. In describing a peritonitis which is not local many physicians use the term general or diffuse. While these words may describe the extent of the process, the word spreading carries with it the additional meaning of something in action. Perhaps no term used by surgeons varies as much in its literal interpretation as general or diffuse peritonitis. They are attempting to describe something, the extent of which cannot be determined by physical examination or seen at operation. Frequently the diagnosis of a general or diffuse peritonitis is made before operation from the physical findings, because of the extreme rigidity of the abdominal muscles. While this is frequently correct, a spreading peritonitis may be actually taking place with only a moderate or slight degree of rigidity. This is observed in those cases in which the infection spreads toward the pelvis or upward retrocecally away from the parietal peritoneum. Rigidity and other signs and symptoms of a spreading peritonitis may be absent when the process

TABLE 5.—*Further Analysis of Relation Between Delay and Mortality*

	Admitted Within 24 Hours		Admitted Within 48 Hours		Admitted Within 72 Hours		Admitted After 72 Hours	
	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths	Recoveries	Deaths
1928-1929	1,643	42	1,648	104	628	54	896	106
	2.55%		6.31%		8.59%		11.83%	
1930	938	24	1,143	47	414	31	451	47
	2.56%		4.11%		7.49%		10.42%	

develops during or following an acute infection of organs or tissues which may be far removed from the peritoneal cavity.

The extent of the peritoneum is approximately the same as that of the skin surface. A great part of it may be involved without any evidence that can be determined by physical examination. The diagnosis of a spreading peritonitis is most frequently made at operation, when with a long vertical incision it is possible to determine the extent. However, long vertical incisions are not always made in operating for appendicitis. In the 1930 series the McBurney, transverse or oblique incision was made in 38.7 per cent of the cases.

TABLE 6.—*Laxatives and Mortality*

	Number Cases	Number Deaths	Deaths in Patients Given Laxatives
1928-1929	5,121	306	147
1930	3,095	149	78

	Deaths in Patients Not Given Laxatives	Deaths: No History of Laxatives	Deaths in Patients Given Laxatives, per Cent
1928-1929	13	146	91.80
1930	5	66	93.98

	Number Cases	Laxatives not Given	Deaths	No History of Laxatives	Deaths
1928-1929	5,121	393	12	3,057	177
1930	3,095	402	5	1,701	67

	One Laxative	Deaths	Multiple Laxatives	Deaths	Total
1928-1929	1,508	85	162	32	5,121
1930	889	62	103	15	3,095

	Laxatives Not Given	Single Laxative	Multiple Laxative
1928-1929	1 in 33 died	1 in 18 died	1 in 6 died
1930	1 in 80 died	1 in 14 died	1 in 7 died

It is evident that the extent of peritonitis could not be determined in these cases by inspection. Furthermore, there are cases of spreading peritonitis which show but slight visible pathologic changes in the peritoneum.

The results of the study of this large number of cases of spreading peritonitis would indicate that the history and reaction of the patient to the infection are important in making an early diagnosis of spreading peritonitis following an appendicitis. A history of the administration of a laxative is most important. Of the 8,261 patients operated on for appendicitis in 1928, 1929 and 1930 in Philadelphia, 455 died; 341, or 76.48 per cent, died of spreading peritonitis; 214 of these gave a definite history regarding laxatives; 196 of the 214, or 91.6 per cent of those dying from spreading peritonitis had received a laxative.

Acute fulminating appendicitis, developing within several hours, characterized by suppuration and gangrene without perforation associated with high temperature and pulse rate is not the usual type of appendicitis, but even in this type the physical findings are usually those of a local process. The indications

TABLE 7.—*Relation Between Kind of Laxative Used and Mortality*

Laxative	Recoveries	Deaths	Totals
Citrate of magnesia	168	10	178
Castor oil	140	21	161
Epsom salts	93	10	103
Multiple laxatives	88	15	103
Milk of magnesia	49	3	52
Ex-Lax	38	0	38
Mineral oil	14	0	14
Cascara	13	0	13
Sal hepatica	5	3	8
Alophen	8	0	8
Seidlitz powder	8	0	8
Mild mercurous chloride	7	0	7
Pluto water	7	0	7
Feenamint	5	0	5
Syrup of figs	4	0	4
Castoria	3	0	3
Phenolax	2	0	2
Phospho-soda	2	0	2
Phylla seed	1	0	1
Kind not mentioned	260	15	275
Patient had no laxative	397	5	402
No history of laxatives	1,634	67	1,701
Totals	2,946	149	3,095

for operation are definite. In a patient suffering with this type of infection, however, if a laxative is given a perforation will occur immediately, and the physical findings will vary with the location of the appendix. If retrocecal or pelvic, the perforation may be grossly sealed and the physical signs may be, and frequently are, those of a localized process, but the patient has actually a spreading peritonitis, as evidenced by marked elevation of temperature, rapid pulse rate and high leukocyte count, and if he is operated on at this time, before he has an opportunity to immunize himself against the infection, he will probably die. Distention and absence of peristalsis are frequently late signs of a spreading peritonitis. General abdominal rigidity, when present, is evidence of an early spreading peritonitis, but there are times when this sign is absent and one must rely on the reaction of the patient to the infection for a diagnosis.

I believe that a good rule to follow in these cases is, when in doubt, wait; take the pulse rate and temperature every hour and the leukocyte count every four hours to determine the management. To operate in the presence of a spreading peritonitis invites catastrophe. The day has passed when an intelligent surgeon interferes with nature's localization of a skin or subcutaneous infection by making incisions over lymph channels that are clearly delineated by their redness. The patient is given an opportunity to immunize himself against the infection, and when temperature and pulse rate have subsided, the lymphangitis has disappeared and the abscess is well walled off, a small opening is made in the center for drainage. The

TABLE 8.—*Mortality Rate for the Twenty-Five Largest Cities in the United States*

	Population	Deaths	Rate
Philadelphia	1,953,423	282	14.4
Portland, Ore.	303,606	44	14.5
Seattle	366,552	54	14.7
San Francisco	636,866	96	15.1
Indianapolis	365,130	56	15.3
Los Angeles	1,250,857	191	15.3
Jersey City, N. J.	317,254	50	15.8
Rochester, N. Y.	328,762	52	15.8
New York	6,991,957	1,110	15.9
Pittsburgh	701,974	115	16.4
Cleveland	902,450	155	17.2
Baltimore	806,297	147	18.2
Chicago	3,389,508	618	18.2
Detroit	1,576,124	295	18.7
Louisville, Ky.	308,843	58	18.8
Buffalo	575,088	112	19.5
Washington, D. C.	487,824	98	20.1
Milwaukee	580,596	119	20.5
St. Louis	822,909	175	21.3
Boston	781,828	168	21.5
Newark, N. J.	442,874	100	22.6
New Orleans	460,152	106	23.0
Minneapolis	465,979	108	23.2
Cincinnati	452,130	109	24.1
Kansas City, Mo.	401,207	106	26.4

management of general peritonitis is identical; one cannot see what takes place; there is only a slight indication of the extent of the pathologic process; how the patient reacts tells a great deal more.

Table 9 summarizes the comparative mortality.

SUMMARY

Delay and laxatives, the prehospital factors responsible for the increasingly high mortality in acute appendicitis can be favorably influenced by educating the public. Hospital factors affecting the mortality are chiefly limited to the management of spreading peritonitis, which is a problem for surgeons.

Table 8 was obtained from an article by Frederick Hoffman in the *Spectator* for August 27, 1931. There

TABLE 9.—*Comparative Mortality*

	1928-1929	1930
Those admitted to hospital		
In Philadelphia	1 in 17 died	1 in 21 died
Within 24 hours	1 in 39 died	1 in 39 died
Within 48 hours	1 in 17 died	1 in 24 died
Within 72 hours	1 in 12 died	1 in 13 died
After 72 hours	1 in 9 died	1 in 10 died
Diminished mortality, 1930 over 1928-1929		1.16%
Diminished time of onset of symptoms to operation, 1930 over 1928-1929		11.81 hours
Number of perforations, 1930 over 1928-1929		7.28%
Decrease in mortality, 5.97% to 4.81%		19.43%
Decrease in time, 61.17 hours to 49.36 hours		19.30%
Decrease in perforations, 42.73% to 35.45%		17.04%

are 25 cities in the United States with a population of 300,000 or over; for 1930, Philadelphia has the lowest mortality rate.

ABSTRACT OF DISCUSSION

DR. DONALD GUTHRIE, Sayre, Pa.: All agree that purgation is contraindicated in all acute surgical abdominal conditions. People are wont to rush to drug stores for medicines and even for advice, but the entire responsibility for the delay cannot be charged to the public. Acute appendicitis has unfortunately become a closed subject. The profession has become

more interested in the obscure and the rare diseases, with the possibility of an acute illness with abdominal pain being acute appendicitis not kept foremost in mind. The man who expects the seven cardinal symptoms to be present in all cases and who is uncertain because there is no nausea or vomiting, or because there is no fever, or because leukocytosis is absent, or because the pain is atypical, will mistake acute appendicitis for some other condition. Morphine is another great cause for delay and mistaken diagnosis. Morphine has no place in the treatment of any acute illness attended with abdominal pain until the diagnosis has been firmly established. Another cause for the unnecessarily high mortality is the tremendous increase of the occasional operator. Many present remember the heated discussions yearly by Deaver, Murphy, Richardson, Ochsner, Joseph Price, William Mayo and others on the symptomatology and indications of appendicitis. The result was that every one who heard them went home with one subject foremost in his mind, appendicitis, and he and his patients profited much by these discussions.

DR. WILLIAM E. ROBERTSON, Philadelphia: The importance of this study of Dr. Bower will be most apparent to those who serve in a general hospital. However, the appeal is made most strongly to the practicing physician, to the lay public and to the pharmacist. The time factor and the danger of administering laxatives in the presence of abdominal pain are the outstanding features dwelt on. To the pharamacist and to the laity, the only safe procedure is to regard any pain in the abdomen as possible appendicitis. The frequency with which the general public consults a pharmacist for those conditions which it regards as minor attests the wisdom of invoking every aid to publicity. The physician's contacts are limited and his prejudices may lead him to ignore, or even antagonize, views expressed by those with whom he does not find himself in agreement. The importance of the situation portrayed by Dr. Bower must be duplicated in every community. If we accept this presentation, the duty of physicians is plain: the public should be apprised of the imminence and importance of the matter. Great progress has been made by medicine since the presentation of Dr. Fitz's paper on "The Diseases of the Appendix Caeci," before the first meeting of the Association of American Physicians in 1886. Dr. Fitz recognized catarrhal appendicitis anatomically but questioned whether its clinical appreciation was possible. He spoke of enemas and laxatives as possible exciting causes of general peritonitis. This knowledge in the possession of the doctor is minimized by the ignorance of the lay public regarding the importance of abdominal pain and "an upset stomach" in their relation to appendicitis, and the danger of laxatives in such cases. Hence peritonitis is not uncommon when the patient is first seen by the physician. Frederick L. Hoffman pointed out that the death rate from appendicitis in 1930 was higher in the United States than anywhere else and that the younger ages pay the toll. This rate in 144 American cities in 1929 was 18.4 per hundred thousand; in 1930 it was 18.5, and it varied in the same cities in 1930 between 2.8 and 57 per hundred thousand. Philadelphia has a lower mortality from appendicitis than any of the twenty-four cities in the United States with a population of 300,000 or over. This lowered rate seems to find its chief explanation in the cooperation of the bureau of health and the wide dissemination of facts by the county medical society and its radio announcements. This presentation merits serious consideration. If it is accepted by those who represent us in the councils of the American Medical Association, it would seem meet that a more intensive effort be made to reach the lay public in an educational sense.

DR. JOHN O. BOWER, Philadelphia: As surgeons, we are really up against it so far as the management of spreading peritonitis is concerned. In Philadelphia the mortality from spreading peritonitis is 26.6 per cent. The surgeon who reported yesterday on acute appendicitis before the surgical section, Dr. Boland, gave a mortality rate of 30 per cent for Atlanta. Dr. Fitz presented his paper in 1886, and two years later, 1888, the mortality from appendicitis was 27 per cent. Practically all of the patients who came to operation had perforations, yet today the surgical management of appendicitis has not been improved.

THE PREVENTION OF RICKETS

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AND
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The tendency in medicine today is to devote more attention to the cause and prevention of pathologic states than to the therapeutic or other measures directed at their amelioration or cure. This tendency is peculiarly evident in the field of pediatrics, and nowhere in the modern literature on this branch of medicine is it more noticeably present than in articles dealing with rickets. While numerous communications have been published recently on series of babies in which attempts to prevent rickets have been made, no article having to do with private patients only or in which the study of each case was continued for as long as two years has come to our attention. Therefore, being anxious to determine the results of such a study and having sufficient clinical material available, we began the present work.

The children used in this study were selected as they presented themselves, no infant being considered who did not come under observation during the first month of life. Each was studied continuously until the second birthday. All were white babies and came from the middle and upper classes, since those from families lower in the social scale are not usually dependable enough for a satisfactory study lasting over so long a period.

About 250 babies were considered, and finally upward of 150 of them were selected as being likely to remain under observation for the required period. Those selected were apparently normal, had been delivered at or near term, were of good average weight and showed no evidence of disease, injury or deformity when first examined. From this method of selection, such factors as prematurity, deformity and congenital debility do not enter into consideration in this series of cases. By the time all the babies entered in this tabulation had reached their second birthday, the original number had decreased to 139.

The object of the study was explained to the mothers, and the part they had to do was agreed on. The cod liver oil and the viosterol used were liberally furnished by pharmaceutical houses [1] the representatives of which were interested in the results of the experiment. This free medication made more certain the continued administration of these substances.

The feeding of all the infants has been constantly supervised, and weights have been determined and recorded at frequent intervals for each of them. Records of the amount and frequency of the dosage of either cod liver oil or viosterol have been kept. An attempt to classify these babies with regard to intercurrent infections, anemia, eczema, asthma, etc., was made, but the resultant figures were too small to be useful for tabulation.

The determination of the phosphorus and calcium content of the blood was not undertaken because of the unwillingness of the parents to submit the children frequently to the discomfort of such tests. That altered

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Read before the Section on Pediatrics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.
1. The viosterol was supplied by Mead, Johnson & Company, the cod liver oil, by Mead, Johnson & Company and the E. L. Patch Company.

chemical composition of the blood may be a misleading sign is noted by Hess, Lewis and Rivkin,[2] who state that the presence of rickets will have to be determined by clinical signs and the roentgen rays rather than by chemical examination of the blood.

The incidence of rickets in untreated babies in our vicinity was determined by one of us [3] a few years ago when the present study was begun, and the figures then obtained will be used for comparison with the results of this study and will be called the control group. A study of this group of babies with regard to the influence of sex shows, as has been repeatedly demonstrated, a somewhat higher incidence of rickets in boys.

TABLE 1.—*Incidence of Rickets—139 Cases* *

Present Group				Control Group: Clinical Diagnosis, per Cent
Clinical Diagnosis		Roentgen Diagnosis		
Number	Per Cent	Number	Per Cent	
31	22.3	22	15.9	54.2

* None had severe or even moderately marked rickets. Children with any signs were considered positive.

These cases have also been tabulated as to the influence of cod liver oil and viosterol on growth as well as to the influence of the rate of growth on the incidence of rickets. Since these studies are not directly relevant to the subject under discussion they will be reported elsewhere.

INCIDENCE OF RICKETS

Of the entire group of 139 babies, 31, or 22.3 per cent, at some time during the study showed clinical evidence of rickets (table 1). In the control group, the total incidence of rickets in the first two years is 54.2 per cent. On at least one roentgen examination, the condition in 22, or 15.9 per cent, was diagnosed as rachitic. The difference between the number of positive findings on clinical and on roentgen examination compares favorably with the reported observations of others. Two reasons, we believe, may be given for the high incidence in this series as compared with that given by other observers. First, our cases were studied over a longer period, while most of the other series were studied for only a few months; second, we consider also the second year, in which we have shown, in a previous study, the highest percentage of positive results. With few exceptions, the literature, lately published, deals with children in whom the observations were begun and ended during the first year of life.

Again, we included all children who at any time showed clinical or roentgen evidence of rickets. We did not include infants who showed early in life only enlargement of the costochrondral junction. No patient developed severe or even moderately marked rickets; private patients under regular attention rarely do so. The most common sign noted was the rosary; next in frequency noted were enlarged epiphyses at the wrist, and next, Harrison's groove. Three patients had sweating of the head, and none developed marked deformity of the chest, head or extremities.

Roentgenologic examination is an essential aid in establishing the diagnosis of rickets and is of special value in determining the degree and advancement of the rachitic process. The roentgen ray is of inestimable aid in the evaluation of healing and repair. Its universal use is an attest to its cardinal worth. We are aware of the fact that early or primary roentgen evidence of rickets is not obtainable, owing in part to the inaccessible regions first involved, and principally to the fact that the process must be at least moderately advanced before osseous changes are perceivable on the sensitized film. We are cognizant of the limitations of roentgen diagnosis of rickets in its incipient stages.

In the series presented, we were concerned solely with preventing rickets. The roentgen signs were meager; therefore any position of exotic claims or asseverations would not only be exorbitant but indefensible. Our age periods for examination were 3, 6, 12 and 24 months. By taking the babies at a specified age of 3 months for the first roentgen examination, we had the opportunity to make a comparative study of all babies at this age. At the second examination, we were able to make an individual comparison of the two age periods of the same baby as well as a collective analysis of all the cases in our series. By this orderly method, we have endeavored to arrive at the normal roentgen appearance of bone at 3 months, as to the density of the cortex, the texture of spongiosa and the general conformation and definition of normal epiphyseal development. From this standard we have judged all aberrations which showed any degree of deficiency which could be attributed to insufficient inorganic salts as positive roentgen evidence of rickets. In no baby in this series had the roentgenologic signs advanced to a degree of more than early rickets. The majority had only the "premonitory" signs which we interpret upon the general loss of density of the thinned-out cortex in the shaft, the coarse, nonhomogeneous make-up of the spongiosa together with slight cupping and blurred epiphyseal margins and the almost universal spreading of the end of the ulna. At the roentgen examination at 12 months all cases in which a previous diagnosis of rickets was made showed evidence of healing, with the exception of one case. An examination made at the twenty-fourth month showed definite signs of healing. Twenty of the 22 positive cases showed complete repair. We should like to mention a feature of our roentgen findings in some of the cases, without an attempt at explanation, that is, the predominance of the rachitic process in one or the other of the structures of the wrist. The same phenomenon was sometimes found during the healing process.

TABLE 2.—*Age of Onset of Rickets and Age When Healing Was Noted* *

Age	Clinical Diagnosis		Roentgen Diagnosis	
	Positive Clinically*	Healing	Positive Roentgenogram	Healing
3 months	7	0	5	0
6 months	11	3	15	4
12 months	7	6	2	16
24 months	6	9	0	2
Total	31	18	22	22

* Positive clinical findings developed before roentgen signs. Healing was noted earlier by roentgenologic examination

No patient in our series had osseous changes around the wrist joints to such a degree as to make necessary differentiation between rickets and other nutritional disorders with similar roentgen characteristics.

2. Hess, A. F.; Lewis, J. M., and Rivkin, Helen: Newer Aspects of the Therapeutics of Viosterol, J. A. M. A. **94**: 1885 (June 14) 1930.
3. Mitchell, F. Thomas: Incidence of Rickets in the South, South. M. J. **23**: 228 (March) 1930.

AGE OF ONSET

Since the patients were first examined clinically at a very early age, an opportunity was presented to determine the age of onset of the signs of rickets (table 2). In 7 of the 31 positive cases, we noted rickets before the fourth month, in 11, by the sixth month, in 7 more, by the first birthday, and in 6 more the evidence of this condition developed during the second year. It will be noted that the high incidence recorded in the control group in the second year has been markedly reduced by the antirachitic therapy employed in this series. The records show definite clinical improvement in 18 of the latter, while under observation, with no increase in the dosage of the antirachitic agent. In three of them, improvement was noted by the sixth month; in six, by the twelfth month, and in nine more, by the twenty-fourth month.

TABLE 3.—*Comparison of Value of Cod Liver Oil and Viosterol* *

Viosterol			Cod Liver Oil		
	Positive Rickets			Positive Rickets	
Total Number	Number	Per Cent	Total Number	Number	Per Cent
84	21	25	55	10	18

* Medication was started at second month of age; discontinued in summer months: Dose of cod liver oil, a teaspoonful daily to sixth month, then 2 or 3 teaspoonfuls daily; dose of viosterol, 10 drops daily.

Roentgen examination revealed evidence of rickets in 5 cases at the third month. Fifteen new cases were found at the sixth month. At the twelfth month we found positive signs in only 2 babies who had previously been reported as giving negative results. At 24 months all of the babies showed evidence of healing or complete repair. Healed rickets would constitute a restoration of density, contour and a definition of bone and epiphyseal structures.

INFLUENCE OF MEDICATIONS

The early literature on a new product is confusing as to dosage and the results to be expected. We finally adopted the dose of viosterol at that time advised by Hess, who said this agent was by far the most potent antirachitic substance [4] and who suggested that the prophylactic dose for normal babies should be from 8 to 10 minims (from 0.5 to 0.6 cc.) per day. He also stated [5] that there was little occasion for giving it in the summer, and that it failed to prevent or to cure infection of the upper respiratory tract or anemia. The use of viosterol was begun at the second month, and most of the patients were given a dosage of 100 D until between the sixth and the tenth month of age, when, because of a change the manufacturers made in the potency of the product, 250 D was supplied. In no patient receiving viosterol were there any symptoms of hypercalcemia, such as vomiting, slight fever, loss of weight, drowsiness or peculiar mental conditions, or any urinary changes due to the administration of the drug,[6] nor were roentgen evidences of excessive healing noted. In one case it was thought that there was evidence of hypercalcification at the anterior fontanel. The dose of cod liver oil was one-half teaspoonful twice each day, beginning at the second month; this was increased to 2 or 3 teaspoonfuls a day at the sixth month. During the summer these agents were discontinued.

The patients were divided into two groups in an effort to determine the efficiency of cod liver oil in one group and of viosterol in the other as antirachitic agents (table 3). Eighty-four were given viosterol, and of this number 21, or 25 per cent, showed evidence of rickets on at least one examination, and of the 55 given cod liver oil, 10, or 18 per cent, developed rickets (table 4). De Sanctis and Craig [7] found that 3 teaspoonfuls of cod liver oil per day protected 97 per cent, that 10 drops of viosterol 100 D per day protected 77 per cent and that 10 drops of viosterol 250 D per day protected 81.5 per cent of 123 patients observed for a period of three months. Wilkes and his co-workers,[8] beginning at 2 weeks of age, gave 3 mg. of viosterol per day to 8 babies. At 3 months of age one premature infant in this series showed rickets. Hess, Lewis and Rivkin [2] gained almost complete protection in 60 patients, studied through the autumn and winter, by the administration of from 10 to 20 minims (0.6 to 1.25 cc.) of viosterol daily. Barnes, Brady and James,[9] in a study of 216 infants from December to April, determined that 3 teaspoonfuls of cod liver oil a day—1400 rat units—protected or cured 95 per cent, and that viosterol—1250 rat units per day—protected or cured 40 per cent.

INFLUENCE OF LIGHT THERAPY

For many years the value of sunlight, or, as a substitute, the ultraviolet ray, has been recognized. Recent observations have confirmed this opinion, and Peyer [10] places sunlight first in his list of the four antirachitic agents: sunlight, ultraviolet ray, cod liver oil and viosterol, as does Levine,[11] after a study undertaken to evaluate the methods of increasing the blood calcium to a normal level. The amount of time spent in the sunshine has been recorded and tabulated. For this treatment the baby was stripped, except for the diaper, and placed in the sun for graduated periods of from five minutes to one hour a day as the tolerance of the skin increased. The time of exposure was gradually advanced as the season became warmer, so that the heat of the midday summer sun was avoided. In our climate, sunbaths may begin in May and be continued

TABLE 4.—*Comparison of Statistics*

Observer	Number Cases	Per Cent Rickets: Viosterol	Per Cent Rickets: Cod Liver Oil	Dose: Viosterol	Dose: Cod Liver Oil	Duration of Experiment
De Sanctis-Craig.....	123	23 18½	3	100 D 250 D 10 M	2 Tsp.	3 mo.
Wilkes et al.....	8	12½	..	3 Mg.	....	3 mo.
Hess-Lewis-Rivkin.....	60	Almost all protected	..	10-20 M	....	6 mo.
Barnes-Brady-James...	216	60	5	10 M	3 Tsp.	5 mo.
Mitchell-Coley.....	138	25	18	10 M	3 Tsp.	2 yr.

4. Hess, A. F.: Rickets, Osteomalacia and Tetany, Philadelphia, Lea & Febiger, 1929, p. 419.
5. Hess, A. F.; Lewis, J. M., and Rivkin, Helen: The Status of the Therapeutics of Irradiated Ergosterol, J. A. M. A. **93**: 661 (Aug. 31) 1929.
6. Hess, A. F., and Lewis, J. M.: Clinical Experience With Irradiated Ergosterol, J. A. M. A. **91**: 783 (Sept. 15) 1928.
7. De Sanctis, A. G., and Craig, J. D.: A Study of the Prophylactic Value of Various Anti-Rachitic Agents, New York State J. Med. **31**: 1133 (Sept. 15) 1931.
8. Wilkes, E. T.; Daye, W. Fallett; and Marples, E. B.: The Treatment of Rickets with Irradiated Ergosterol, Am. J. Dis. Child. **37**: 483 (March) 1929.
9. Barnes, D. J.; Brady, M. J., and James, E. M.: Comparative Value of Irradiated Ergosterol, Am. J. Dis. Child. **39**: 45 (Jan.) 1930.
10. Peyer, Karl: Prophylactic Agents in Rickets, abstr., Am. J. Dis. Child. **42**: 46 (July) 1931.
11. Levine, V. E.: Sunlight, Nutrition and Metabolism, Arch. Physical Therapy **12**: 197 (April) 1931.

with almost uninterrupted regularity until late in September. For all the children in this series sunlight was advised, and in 33 children this treatment was carried out in what was believed by us to be sufficient dosage and with sufficient regularity. Of this number 3, or 9.9 per cent, developed rickets, which is the lowest prevalence noted in any part of this series studied (table 5).

TABLE 5.—*Influence of Sunlight and Ultraviolet Rays* *

Number of Cases	Therapy Employed	Per Cent Rickets
33	Sunlight	9.9
22	Violet ray	13.6

* These patients also received either viosterol or cod liver oil. The lowest incidence in the whole series was attained in this group, which received light therapy.

Gerstenberger and Hartman [12] and, more lately, Vollmer [13] have determined the minimal amount of ultraviolet rays necessary as a preventive. In our series, 22 children received at least this amount, and only 3, or 13.6 per cent, of them fell into the rachitic class. From this we determine that the best antirachitic agent at hand today is a sufficient amount of direct sunlight, and that the ultraviolet rays are an entirely satisfactory substitute in the winter months. Since this group was evenly divided both as to numbers and results between those receiving cod liver oil and those receiving viosterol, no discussion of a combination of these agents is possible.

INFLUENCE OF DIET

In this series of 139 babies, 32 were breast fed (table 6). Of this number, 7 were given cod liver oil, and 25 received viosterol. Of those receiving cod liver oil, 14 per cent showed evidence of rickets, while 12 per cent of those receiving viosterol developed this condition. Thus, 25 per cent of this group developed rickets, while in the control group 35 per cent of the breast-fed infants developed rickets.

Cow's milk and cane sugar was fed to 27 babies. Of these, 9 received cod liver oil and 18 received viosterol. Of the 9 given cod liver oil, 44 per cent developed

TABLE 6.—*Influence of Diet* *

Diet	Number	Per Cent Rickets		
		Viosterol	Cod Liver Oil	Control
Breast milk	32	12	14	35
Cow's milk and cane sugar	27	44	44	42
Cow's milk and malt	39	32	15	42
Breast and cow's milk	29	21	15	64
Acid milks	12	12	0	55

* Greater protection was afforded in those patients who were on diets most deficient in antirachitic quality.

rickets, while of those receiving viosterol the same percentage showed evidence of this disorder. Cow's milk modified with one of the various maltose and dextrin mixtures was used for 39 patients in this series, of whom 20 were given cod liver oil and 19 viosterol. Of those who received cod liver oil, 15 per cent developed rickets, and 32 per cent of those receiving viosterol developed evidence of this condition. In the entire group fed cow's milk, 32 per cent showed some evidence of rickets, while in the control group 42 per cent developed rickets.

Breast and cow's milk were fed to 29 of these babies. Cod liver oil was used for 15, and 15 per cent showed evidence of rickets, while of the 14 who received viosterol, 21 per cent developed this condition. Of the whole number so fed, 17 per cent showed signs of this disorder, while in the control group 64 per cent developed rickets. Acid milks were fed to 12 babies. Four of them received cod liver oil and 8 received viosterol. None of those who received cod liver oil developed rickets, and of those given viosterol, 12 per cent showed signs of the condition. Of the 12, the disease was recognized in 8 per cent. In the control series it was present in 55 per cent.

From a study of the aforementioned data, it is again observed that diet is not the important factor in the production of rickets that it formerly was thought to be and also that in this series the greatest protection against rickets was obtained for the babies who were fed diets recognized as being most deficient in antirachitic substance.

SEASONAL INCIDENCE

That rickets is more prevalent in the winter and spring months is well recognized. It may be of interest to note that in this series the signs of rickets were more often noted during these months (table 7). Thus in January, 4 cases were first diagnosed; in February, 4; in March, 6; in April, 5; in May, 4; in June, none; in July, 1; in August, none; in September, 1; in October, 1; in November, 2, and in December, 3.

TABLE 7.—*Seasonal Incidence* *

	Clinical Examination											
Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Number	4	4	6	5	4	0	1	0	1	1	2	3

	Roentgen Examination			
Season	Winter	Spring	Summer	Autumn
Number	6	7	5	4

* Roentgen studies were made only four times in each case at 3, 6, 12 and 24 months; hence the variation in findings in the table.

The onset of rickets does not occur according to the usual seasonal influence, as shown in the chart for the roentgen examinations, because of the longer interval between these examinations as compared with the clinical ones, and due to the fact that these children were continually under antirachitic treatment. Six children first showed roentgenologic evidence of this condition in the winter, 7 in the spring, 5 in the summer and 4 in the autumn.

CONCLUSIONS

1. Either cod liver oil, in doses of 2 or 3 teaspoonfuls daily, or viosterol, in doses of 8 or 10 drops daily, exert a definite influence against the development of rickets, and by either treatment severe or even moderately marked rickets is prevented in babies who live in good hygienic surroundings.

2. In spite of the aforementioned therapy, 22.3 per cent of patients show clinically mild rickets. In 15.9 per cent of the cases, the roentgen findings were positive.

3. The administration of cod liver oil in the dosage mentioned completely protects 82 per cent of the

12. Gerstenberger, H. J., and Hartman, J. I.: Quartz Lamp Therapy in Human Rickets and Rachitic Spasmophilic, J. A. M. A. **82**: 367 (Feb. 2) 1929.

13. Vollmer, H.: Treatment and Prophylaxis of Rickets by Means of Smaller Doses of Quartz Lamp Radiation, abstr., Am. J. Dis. Child. **43**: 208 (Jan.) 1932.

patients, while the given dose of viosterol completely protects only 75 per cent, in spite of the fact that the amount of viosterol has a little more than twice the amount of vitamin D contained in the daily dose of cod liver oil.

4. The lowest prevalence of rickets, 9.9 per cent, occurred among those given sunbaths in summer and viosterol or cod liver oil in winter. The ultraviolet ray is a satisfactory substitute for sunbaths, the incidence of rickets in those so treated being 13.6 per cent.

5. In the causation of rickets there must be other factors than a deficiency of vitamin D—a comparative deficiency of vitamin A, as expressed by De Sanctis and Craig,[14] a deficiency of minerals in the diet as suggested by Weston,[15] or perhaps some other as yet unrecognized agent in which the influence of light possibly plays as important a part as it does in the activation of ergosterol.

ABSTRACT OF DISCUSSION

DR. CHARLES J. BLOOM, New Orleans: In New Orleans, recently, I made an investigation of our commission milk supply and was struck with the following facts: 1. There was an insufficient amount of calcium and phosphorus. 2. There was an improper ratio of calcium oxide and phosphorus pentoxide. In a series of controlled cases, in which an amount of dicalcium phosphate equal to 4 per cent was added to the daily forage of cows, readjustment of the chemical content and a proper ratio of these respective salts were established within a short period of time. Knowing that the sources of supply of this salt from foods other than milk are negligible, it can now be readily understood how necessary it is to ascertain just how much of the eleven necessary elements that the body requires is contained in vegetables, cereals, milk, and so on. Dr. Weston has been agitating the use of inorganic salts for a great many years, and I wish to acknowledge a debt of gratitude for the inspiration he has given to me in my particular observations. It is not my desire to either discredit the successes attending the use of cod liver oil or to imply that protection cannot be gained by the use of viosterol; nevertheless I do feel that the addition of dicalcium phosphate to the diet of the average child will protect and cure a greater number than is now being observed with the present antirachitic therapy. Let us revert, if we can, to natural things. Let one combine, if he likes, dicalcium phosphate, sunlight and cod liver oil, or concentrates; possibly only a small amount of the third will be necessary. It appears to me that the number of cases of rickets to be seen in the future will be much less than those that are occurring at this time.

DR. WILLIAM WESTON, Columbia, S. C.: I congratulate the authors on the conservatism of their views. This is a subject that physicians can no longer afford to become too dogmatic about. It appears that there are several factors concerned in the deposition and utilization of calcium and phosphorus, and at this time it cannot be said which one of them may be the determining factor. I am not sure that those who discuss this matter always have clearly in mind the distinction between osteoporosis and rickets. It has recently been learned that there is a community of interest between the mineral elements and probably also the vitamins and that they work in an harmonious manner under favorable circumstances. Both iron and phosphorus are concerned in the utilization of calcium. Of course, as Dr. Bloom emphasizes, one must be sure to have a sufficient amount of both calcium and phosphorus, to obtain satisfactory results. Analyses of milk demonstrate that the mineral elements are extremely variable. From 9,000 to 20,000 parts of calcium per million will be found. Phosphorus is less variable, as the difference will be only from 6,000 to 7,000 parts per million. In the determination of iodine, variations are from 10 to 1,000 parts per billion. If it is true that all these elements are concerned in the utilization of calcium, it is manifest that a conservative opinion must be maintained.

DR. J. VICTOR GREENEBAUM, Cincinnati: For the past eight years in Cincinnati, work has been in progress on the problem of the prevention of rickets, and a number of interesting observations have been made. At first, many investigators were finding 85 or more per cent of their roentgenograms of the wrists of infants under 1 year of age positive for rickets. At the time that my associates and I were studying our group of infants whose mothers were fed during pregnancy, we apparently found also a very high incidence of rickets from the roentgenograms of their wrists. In a second series that Selkirk, Mitchell and I reported to this section about four years ago, we took roentgenograms of the wrists at frequent intervals and found that these pictures, which looked like rickets on the first examination, proved to be physiologic changes from a study of the subsequent pictures. Therefore, we made no diagnosis of rickets on the basis of one roentgen examination. As a result, the percentage of diagnoses of rickets from the roentgenographic standpoint has been materially lessened in subsequent studies. In the later report, we showed that no infant who had received eleven minutes a month of ultraviolet radiation continuously for at least three months developed rickets. I therefore should like to ask two questions. First, were series or roentgenograms of the wrists taken? Second, what was the amount of ultraviolet radiation given, and was this ultraviolet radiation given regularly or not?

DR. MARTHA M. ELIOT, New Haven, Conn.: It has been suggested that it would not be inappropriate to report briefly studies just being completed of the value of salmon oil in the treatment of infantile rickets. In 1931, Tolle and Nelson reported that oil prepared from the waste products of certain species of salmon was twice as potent in vitamin D as a good grade of cod liver oil and equally potent in vitamin A. Recently samples of oil from the waste products (body fat) of three species of salmon, Pink, Chinook and Sockeye, have been tested clinically and found to have a prompt antirachitic effect. Thirteen infants with active rickets were given salmon oil in doses of from 10 to 20 cc. daily (average dose, 13.8 cc.). The oil was taken and well tolerated without gastro-intestinal upset. In all cases but one (an infant with a severe infection) the response to treatment was prompt, fresh deposits of lime salts appearing in the rachitic metaphysis at the end of one or two weeks, and return of the calcium or phosphorus in the blood to the normal level occurring also in from one to two weeks' time. Craniotabes disappeared rapidly. Biologic assays of the samples of oil used are being made by Dr. Nelson at the Bureau of Chemistry. Vitamin D assays of two samples have been completed and show that each is at least twice as potent as a good grade of cod liver oil. Assays for vitamin A are not yet finished. The salmon oil used was undoubtedly a more potent antirachitic agent than the usual good grade of cod liver oil, and clinically compared favorably with viosterol in the rapidity of its action. Tolle and Nelson estimated that the waste from the canning industry would yield a supply of 1,000,000 gallons of salmon oil annually. If this quantity of salmon oil, a source of vitamin D as yet untapped for human consumption, was to be put on the market as a properly standardized food and supplied at low cost through the usual channels for distribution of food, one of the great nutritional needs of children would be more easily and more adequately met.

DR. F. THOMAS MITCHELL, Memphis, Tenn.: With regard to examining the blood, we were not able to do that. These were all private patients. I was somewhat disappointed in being unable to perform these tests until recently I observed an article by Hess, who stated that chemical examination of the blood may at times be misleading, because he is finding that calcium and phosphorus determinations do not always tally in exact measure with the amount or even the incidence of rachitic observations as reported by clinical and roentgen examination. I have not had experience in the use of added calcium to the diet, in an experimental way, in the prevention of rickets. It is entirely possible that much of the ingested calcium is not absorbed and that additional calcium or other minerals added, in addition to the known antirachitic agents, would be useful. There wasn't any deficiency in the diet of these children, as diet is generally understood. Their rate of

14. De Sanctis, A. G., and Craig, J. D.: A Study of the Prophylactic Value of Various Anti-Rachitic Agents, Arch. Pediat. **48**: 595 (Sept.) 1931.

15. Weston, W.: Food Factors Other Than Vitamin D in Rickets, J. A. M. A. **94**: 529 (Feb. 22) 1930.

growth, on the whole, was good. In fact, more than 60 per cent of them grew somewhat more rapidly than according to the average weight chart. Osteoporosis and other conditions of the bone were thought of and studies were made of these individuals to see whether any evidence could be gained of bone deficiency or of calcium deposit deficiency, other than rickets. We were not able to make them out. This study was begun four years ago. At that time, to my knowledge, serial roentgen studies of the wrist were not known, and we did not use them in this series. The same might be said with regard to the dose of viosterol. It was a new product, and the dose of 10 minims (0.6 cc.) which was advised in those days is now somewhat increased by some authorities. But there was in those days some fear expressed that overdoses could be used. For that reason, since we had started with the single roentgen examination and with the initial dose, 10 minims, we did not change with the appearance of these newer ideas with regard either to diagnosis or to the preventive treatment of the condition. The radiation used in these series did average at least eleven minutes a month. That one may find rickets and another one might not find rickets in groups of babies is entirely possible. We made a positive diagnosis on every baby which had at least two, even though very mildly developed, symptoms, ordinarily called rachitic changes. I speak of the clinical diagnosis. We had to do that in order to get enough positive rickets in the series to make comparison between the usefulness of the two antirachitic agents. I am indeed delighted to have my knowledge increased with regard to the use of salmon oil. I had not until now known that salmon oil was even active as an antirachitic agent. Cod liver oil concentrates or cod liver oil tablets were not used in this series at all.

EFFICACY OF QUINIDINE IN MALARIA

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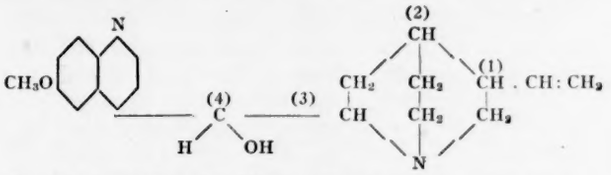
Quinidine is worth consideration in connection with the treatment of malaria. In some recorded cases of urticarial,[1] asthmatic or anaphylactoid,[2] or coryzal [3] reaction to quinine, quinidine has been found to produce no such annoying side effect. While such patients are not numerous, every one of them presents a troublesome problem, and it is in the hope that quinidine may be found useful in some such cases that we call attention to this drug, a natural alkaloid of cinchona, the antimalarial value of which has been widely attested.

Quinidine, an optical isomer of quinine, was discovered in 1833 by Henry and Delondre. In 1834, "deceived by the analogies between quinidine and quinine," they decided that quinidine was merely a "hydrate of quinine." [4] In 1847, Winckler discovered the alkaloid now known as cinchonidine and applied to it the name quinidine, which was free; thus began a confusion of these two alkaloids with each other that echoes still. The relation between quinine and quinidine was first definitely shown in 1853 by Pasteur, who established that "it had the same composition as quinine, from which it differed in rotating polarized light to the right, instead of to the left as with quinine." [4] Pasteur proposed the new name cinchonidine for Winckler's quinidine, and reappropriated the name quinidine for the quinidine of Henry and Delondre. Pasteur's terminology is now in use.

Chemical research has shown the presence in the quinidine formula of four asymmetrical carbon atoms. These are all dextrorotatory in effect in quinidine, but



Formula of quinidine and quinine. The asymmetric carbon atoms are numbered.

in quinine probably both the third and fourth (see formula) are levorotatory in effect,[5] and there is a net levorotatory balance.

The source of quinidine is cinchona bark, in most varieties of which it is the least abundant of the crystallizable alkaloids commercially separated. In 1929, the bark extracted by a large quinine works averaged 4.935 per cent quinine and only 0.14 per cent quinidine.[6] A variety of Cinchona ledgeriana exists, however, called Chinidinifera,[7] in which the quinidine content may be very high, showing quinine 1.86 per cent and quinidine 3.86 per cent in recent analysis; [7] this variety is not widely known and has probably not been much cultivated. The chief impurity likely to be present in quinidine is hydroquinidine (from 6 to 30 per cent),[8] which has been shown by Giemsa and Werner [1] to possess high antimalarial activity; this has been confirmed by Bevil.[9] Rabe [5c] has succeeded in preparing quinidine by suitable chemical treatment of quinine.

The lethality of quinidine for mammals is probably greater than that of quinine, as judged from observations on the cat,[10] rat [11] and guinea-pig.[12] The subcutaneous dose of quinidine in terms of anhydrous alkaloid killing 50 per cent of a group of thirty small male guinea-pigs is about 130 mg. per kilogram against about 200 for quinine. Hydroquinidine is possibly slightly less toxic than quinidine.[12] All three alkaloids in doses nearly or quite lethal are likely to cause clonic convulsions in the guinea-pig, and probably in man, judging from the observations of Lavier on five cases (three

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From the Department of Pharmacology, University of Texas, and the practice of Dr. J. P. Sanders. The toxicity work has been aided by a grant from the Committee on Scientific Research of the American Medical Association.

1. Giemsa, G., and Werner, H.: Erfahrungen mit weiteren dem Chinin nahestehenden Alkaloiden, und einigen ihrer Derivate bei Malaria (Chinidin, Hydrochinidin, Cinchonin, Hydrocinchonin, Cuprein, Chinäthylin, und Chinopropylin), Arch. f. Schiffs- u. Tropen-Hyg. **18:** 12, 1914.

2. (*a*) Dawson, W. T., and Garbade, F. A.: Idiosyncrasy to Quinine, Cinchonidine and Ethylhydrocupreine and Other Levo-Rotatory Alkaloids of the Cinchona Series: Preliminary Report, J. A. M. A. **94:** 704 (March 8) 1930; J. Pharmacol. & Exper. Therap. **39:** 417 (Aug.) 1930. (*b*) Sanders, J. P.: Treatment of a Patient with Malaria and Acquired Anaphylactoid Reaction to Quinine: Successful Use of Quinidine, J. A. M. A. **97:** 850 (Sept. 19) 1931.

3. Dawson, W. T., and Newman, S. P.: Acquired Allergic Coryzal Reaction to Quinine, but Not to Quinidine or Quitenine, J. A. M. A. **97:** 930 (Sept. 26) 1931.

4. (*a*) Léger, E.: Les alcaloides des quinquinas, Soc. d'éditions scientifiques, Paris, 1896. (*b*) Dawson, W. T.: Cinchona Alkaloids and Bark in Malaria, Internat. Clin. **2:** 121 (June) 1930; (*c*) J. Roy. Army M. Corps **56:** 178 (March) 1931.

5. (*a*) Henry, T. A.: The Plant Alkaloids, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1924. (*b*) King, Harold, and Palmer, A. D.: The Resolution of Tropic Acid and the Stereochemical Configuration of the Cinchona Alkaloids, Tr. Chem. Soc. **121:** 2578, 1922. (*c*) Rabe, Paul: Über die Reduktion der China-Ketone zu China-Alkoholen und über die sterische Umlagerung von China-Alkaloiden, Ann. d. Chem. **492:** 242, 1932.

6. Howard, B. F.: Some Notes on the Cinchona Industry, Chem. News **142:** 129 (Feb. 27) 1931.

7. (*a*) Kerbosch, M.: Personal communication. Dr. Kerbosch is director of Government Cinchona Plantations, Java. (*b*) Dawson, W. T.: Antimalarial Value of Cinchona Alkaloids Other Than Quinine, South. M. J. **25:** 529 (May) 1932.

8. Howard, B. F.: Personal communication. Dawson (footnote 7 *b*).

9. Bevil, H. G.: Personal communication.

10. Weiss, Soma, and Hatcher, R. A.: II. Studies on Quinine, J. Pharmacol. & Exper. Therap. **30:** 327 (Feb.) 1927; III. Studies on Quinidine, ibid. **30:** 335 (Feb.) 1927.

11. Nelson, Erwin E.: Studies on Quinine and Quinidine: IV. A Note on Their Comparative Toxicity, Arch. internat. de pharmacodyn. et de thérapie **33:** 204, 1927.

12. Dawson, W. T., and Harms, H. P.: Previously unpublished observations.

fatal) of poisoning of French soldiers with quinine;[13] the dose was about 16 Gm. of the hydrochloride, in solution, by mouth. No complete physiologic analysis of these convulsions has yet been made. "Useful Drugs" recommends in auricular fibrillation dosage of 5 grains (0.324 Gm.) of quinidine sulphate four times daily. Hornor[14] has given as high as 150 grains (9.7 Gm.) a day in auricular fibrillation, but this appears very high.

Quinidine and quinine appear to be rapidly absorbed from the intestine, partly destroyed in the liver[10] and more or less largely excreted in the urine, depending on the individual, and in 5 grain doses usually give rise to a urinary turbidity with potassiomercuric iodide reagents.

Quinidine has come into prominence of late years in connection with the treatment of auricular fibrillation. Quinidine sulphate, however, has been official in the U. S. Pharmacopeia since 1884, having apparently been included because of its antimalarial efficacy, now largely forgotten.

The earliest large scale therapeutic observations on quinidine were made by the Madras Chinchona Commission in 1866-1868 in southern India.[15] "Mostly at stations and in localities known to be malarious," their representatives used quinidine in 1,040 cases of fevers considered "of the true paroxysmal character caused by malaria" and in 1,025 cases the "febrile paroxysms" ceased, a percentage of clinical cure of 98.5 per cent.

Since the discovery of the malarial parasite, the antimalarial efficacy of quinidine has been confirmed by German,[1] British,[16] French[17] and Italian[18] workers on totals of more than 400 cases of benign tertian and 120 cases of estivo-autumnal fever, and 11 of quartan. Some have classed the drug as inferior to quinine, some as superior, and some as of equal value.

The toxic effects reported from quinidine treatment are strikingly similar to those of quinine. The Madras Commission[15] in a report on 846 patients treated with doses of from 2 to 20 grains (0.13 to 1.3 Gm.) of

13. Lavier, G.: Sur cinq cas dont trois mortels d'intoxication aiguë par la quinine, Bull. Soc. path. exot. **24:** 184, 1931.

14. Hornor, A. A., in discussion on Barrier, C. W.: The Use of Quinidine in the Treatment of Ectopic Rhythms, J. A. M. A. **89:** 745 (Sept. 3) 1927.

15. Reports of the Madras Chinchona Commission Contained in Blue Book "Return. East India (Chinchona Cultivation). 9 August 1870," London, His Majesty's Stationery Office, 1931. Out of print, 1932. Summary by Dawson, footnote 4*b*.

16. (*a*) MacGilchrist, A. C.: The Relative Therapeutic Value in Malaria of the Cinchona Alkaloids—Quinine, Cinchonine, Quinidine, Cinchonidine and Quinoidine, and the Two Derivatives, Hydro-Quinine and Ethyl-Hydro-Cupreine, Indian J. M. Research **3:** 1, 1915-1916. (*b*) Acton, H. W.: Researches on the Treatment of Benign Tertian Fever, Lancet **1:** 1257 (June 12) 1920. (*c*) Medical Research Council, Clinical Comparisons of Quinine and Quinidine, Special Report Series, no. 96, London, His Majesty's Stationery Office, 1925. (*d*) Fletcher, William: Notes on the Treatment of Malaria with the Alkaloids of Cinchona, London, John Bale, Sons & Danielsson, Ltd., 1928. (*e*) Sinton, J. A., and Bird, W.: Studies in Malaria, with Special Reference to Treatment. The Cinchona Alkaloids in the Treatment of Benign Tertian Malaria, Indian J. M. Research **16:** 725 (Jan.) 1929. (*f*) Sinton, J. A.: Summary of Experiments Made in India on the Value of the Different Cinchona Alkaloids in the Treatment of Malaria, Records of the Malaria Survey of India **1:** 429, 1930.

17. Marchoux, E.: Tous les alcaloïdes du quinquina possèdent la même action curative sur le paludisme, Bull. soc. path. exot. **12:** 307, 1919.

18. Ascoli, V.: Alcuni alcaloidi della china nella cura della malaria, Policlinico (sez. prat.) **33:** 370 (March 15) 1926. Lega, G.: Il chinetto, la cinconina, la chinidina nella cura della malaria, Riv. di malariol. **7:** 629 (Sept.-Oct.) 1928.

Clinical Results of a Four-Day Course of Treatment of Smear-Diagnosed Malaria *

Patient's No.; Age, if a Child	Effect of Four Day Treatment After Beginning of Treatment: Chills	Days of Fever	Days to Clinical Recovery	Blood Smear	Clinical Relapses	Further Treatment†
White		A. Quinidine in Benign Tertian Malaria				
2	0	1	4	—(10) —(370)	0 in 410	None
3	0	1	3	—(39) —(360)	0 in 400	None
4	0	0	3	—(39) —(360)	0 in 400	None
5	0	2	4	—(6) —(330)	Headache at 30	One at 30
6	0	2	5	—(10) +(94) —(300)	One at 94	One at 94
9	0	2	4	—(10) —(285)	0 in 325	None
11	0	1	3	—(5) +(270)	One at 270	One at 270
18	0	1	3	—(5)	0 in 200	None
27	0	1	3	—(90) —(220)	0 in 255	None
43	0	1	3	—(30) +(180)	0 in 220	One at 190
45	0	1	3	—(10) —(180)	0 in 220	None
49	0	1	4	—(190)	One at 30	Quinine at 30
56	0	1	3	—(13) —(152)	0 in 190	None
58	0	1	4	—(10) —(140)	0 in 180	None
Negro						
8	0	2	4	—(11) —(125) —(250)	0 in 290	None
24	0	2	4	—(30)	0 in 180	None
31	1	1	7	—(10) +(45) M.T.‡	0 in 150	One at 50
35	0	3	10	—(50) —(220)	3 in 260	None
39	0	2	10	—(45) —(215)	0 in 215	None
42	0	1	7	—(20)	0 in 90	None
48	1	2	7	—(20) —(150)	0 in 170	None
21	2	1.4	4.7		4	6
		B. Quinidine in Estivo-Autumnal Malaria				
White						
33	0	1	4	—(10)	0 in 40	None
38	0	1	3	—(14)	0 in 40	None
61 (3)	0	1	3	—(10) —(30)	0 in 110	None
62 (16)	0	1	3	—(7) +(14) +(102)	Two	Clinical relapses at 14 and 28; quinidine repeated each time with prompt cessations of symptoms
63 (12)	0	1	3	—(7) +(14) +(102)	Two	
64 (10)	0	1	4	—(10) —(102) +(120)	One at 120	One at 120
Negro						
17	1	3	5	—(95) —(148)	0 in 148	None
20	0	1	2	—(88) —(140)	0 in 140	None
21	0	3	7	—(83) —(135)	0 in 135	None
25	0	1	4	+(64) —(117)	0 in 157	One at 64
26 (6)	0	1	4	+(64) —(117)	0 in 157	One at 64
28	0	1	2	—(64) —(117)	0 in 157	None
37	0	2	10	—(60) +(120)	0 in 150	One at 150
41 (14)	0	3	7	—(30) —(210)	0 in 250	None
50	0	3	14	—(20) —(160)	0 in 195	Took 10 grains of quinine about 60 days
51	0	1	2	—(10) —(150)	0 in 150	None
52	0	3	7	—(15) +(150)	0 in 170	One at 170
54 (4)	1	3	10	—(155)	0 in 155	None
60	0	3	10	—(105)	0 in 105	None
19	2	1.8	5.5		3	8

Clinical Results of a Four-Day Course of Treatment of Smear-Diagnosed Malaria—Continued

Patient's No.; Age, if a Child	Effect of Four Day Treatment After Beginning of Treatment: Chills	Days of Fever	Days to Clinical Recovery	Blood Smear	Clinical Relapses	Further Treatment
C. Quinine in Benign Tertian Malaria						
White						
10	1	4	14	−(45) −(250)	0 in 290	None
29	1	4	14	−(230)	0 in 270	None
Negro						
1	0	7	32	−(7) −(14) −(21) −(360)	3 (7, 14, 21)	Repeated quinine at 7, 14, 21 days; quinidine at 28; clinically well for 370
5	1	2	4	−(120) −(270)	0 in 310	None
6	0	1	4	−(120) −(270)	0 in 310	Chills stopped before treatment started
9	3	7	14	−(7) −(105) −(255)	One at 7	Quinidine at 7; prompt recovery
11	3	3	14	−(14) −(240)	One at 7	Same as case 9
12	0	8	28	−(100) −(136) −(241)	One at 100	Quinidine at 100
17	1	7	14	−(110)	0 in 150	None
18	2	3	7	+(78) −(105)	0 in 105	Quinidine at 85
19 (7)	0	3	4	+(78) −(105)	0 in 105	Quinidine at 85
22	1	5	14	−(10)		
23	1	7	10	−(7) −(30)	One at 7	Quinidine started at 7
25	1	4	5	−(50) +(135)	One at 100	Quinine and chill tonic
26	0	1	3	−(50) +(130)	0 in 135	Quinidine at 135
28	1	4	10	−(30)	0 in 190	None
32	0	3	7	−(35) −(120)	One at 150	Quinidine at 150
33	0	2	14	−(35) −(130)	0 in 130	None
34 (13)	0	2	7	−(30)	0 in 150	None
35	1	3	7	−(30)	0 in 130	None
36	3	7	14	−(137)	0 in 137	None
37	1	3	7	−(135)	0 in 175	None
38 (5)	0	3	7	−(30) −(130)	0 in 170	None
46	0	7	14	−(10) −(130)	One at 5	Quinidine at 5
50	2	3	14	−(10) −(140)	0 in 170	None
53	0	2	7	−(133)	0 in 173	None
57	1	3	7	+(135)	0 in 175	Quinidine at 140
58	0	3	7	−(135)	0 in 175	None
59	0	1	5	−(30)	0 in 95	None
60	0	3	7	−(10)	0 in 195	None
30	16	3.8	10.5		8	12
D. Quinine in Estivo-Autumnal Malaria						
Negro						
8	0	3	14	−(5) +(92) −(300)	0 in 300	Quinine at 100
21	0	3	14	−(68) −(270)	0 in 310	None
27	0	3	14	+(48) −(210)	0 in 210	Quinine at 50
30 (3)	0	7	14	+(48) −(210)	0 in 240	Quinidine at 60
40	0	2	7	−(15) +(180)	0 in 210	Quinidine at 200
42	2	14	28	−(175)	0 in 175	Quinine and chill tonic at 14 (self prescribed)
43	0	7	14	−(175)	0 in 175	None
45	0	1	7	−(134)	0 in 134	None
47	0	2	7	−(169)	0 in 200	None
48	2	3	7	−(132)	0 in 172	None
51	0	2	14	+(165)	0 in 180	Quinidine at 180
55	2	3	10	+(5) −(10) −(90)	1 at 5	Quinidine at 5
61	2	7	21	+(7) −(14) −(90)	1 at 10	Quinidine at 10
13	4	4.4	13.1		2	8

* Daily single doses consisting of 10 grains of quinine sulphate or quinidine sulphate; the course was repeated as needed. The numbers in last three columns refer to days after beginning the treatment.

† "One at 50" or "quinidine at 50" means one four day course of 10 grains daily starting at fifty days from the beginning of the initial treatment.

‡ Malignant tertian (estivo-autumnal).

quinine and 664 treated with quinidine in doses of from 2 to 30 grains (0.13 to 1.95 Gm.) gave as toxic effects of both alkaloids deafness, singing in the ears, purging, vomiting, vertigo, "excitement" or "depression" of the circulation. The differences cited between the two are that the purging after quinidine is called bilious, and that quinine caused a few headaches.

Malariologists in general appear to have considered quinidine a safe drug, but the British Medical Research Council [19] publishes a warning note. Acton, "in a series of somewhat weakly and illnourished Indian patients treated by him for malaria with quinidine, has in several instances observed pronounced depression of the heart's action, which he attributes to the effect of quinidine." Syncope was observed, and two sudden deaths, the latter in patients also suffering, however, from kala-azar. Two things should be here noted. Kala-azar may be rapidly fatal; the dose of quinidine used is not stated. Quinidine sulphate has been given in malaria in 270 cases in doses of 10 grains (0.65 Gm.) twice daily for a week or more without recorded accident.[20]

Hegner, Shaw and Manwell [21] found quinidine and quinine practically equal in bird malaria, but there seems to have been little interest in this country in the clinical aspects of the question. Our own interest in the matter dates from experience of two cases in which quinine caused an asthmatic or anaphylactoid type of reaction while quinidine appeared harmless,[2] despite the assertion of various cardiologists that quinidine should not be given to subjects with quinine idiosyncrasy.

In 1930, one of us (J. P. S.) used quinidine in 39 cases of malaria with good results.[22] Then we decided to try to compare it with quinine, the antimalarial value of which is well established. With this in mind in 1931, we decided to treat alternate patients with quinine and quinidine. The same dosage of sulphate was used for the same length of time and in the same manner. This was carried out except in two or three patients who had taken quinidine the year previously and refused to take quinine. The method of giving 10 grains daily three hours before chill time for four days was used for two

19. Medical Research Council (footnote 16 *c*).
20. Acton, Sinton and Bird (footnotes 16 *b* and 16 *c*).
21. Hegner, R.; Shaw, E. H., Jr., and Manwell, R. D.: Methods and Results of Experiments on Effects of Drugs on Bird Malaria, Am. J. Hyg. **8**: 564 (July) 1928.
22. Sanders (footnote 2 *b*).

reasons. First, it was the method used in the 39 cases in which quinidine was administered, and, second, in such small quantities we thought any difference between the two drugs might be accentuated.

The observations in 1931 on quinidine and quinine were carried out in 125 patients with malaria treated by one of us (J. P. S.) at Caspiana, La. In the course of a country general practice, 61 patients were treated with quinine, 64 with quinidine, mostly in alternate cases. Treatment consisted of one 10 grain dose of quinine or quinidine sulphate, generally in capsules, on each of four consecutive days, each dose being given about three hours before the hour of the chill in the particular case. Treatment was ordered as soon as the clinical diagnosis of malaria was made. At the same time a blood smear was made and forwarded to Dr. W. J. Sandidge, of the Caddo Parish Health Unit at Shreveport, for definite diagnosis. More than a third of the patients had negative blood smears and are, therefore, excluded from further consideration here.

How were we justified in trusting that so little treatment would secure the safety of the patient? The answer lies in the history of the subject. Wade,[15] in 1868, reported on the treatment of malaria usually with single 10 grain doses in solution. He treated 300 patients with quinidine and found one dose sufficient in 268 cases, two needed in 30 cases and three doses in 2 cases, "to stay the attack of fever." Results with quinine were similar. Giemsa and Werner [1] obtained good results in malaria with 0.2 Gm. (3 grains) of quinidine hydrochloride twice daily. Stephens [23] and his collaborators showed that in chronic benign tertian malaria a 10 grain dose of quinine sulphate on each of two successive days caused temporary cure and absence for ten to eighteen days of parasites from the peripheral blood.

By excluding patients with initial negative blood smears, the clinical material for consideration is reduced to fifty-one patients with benign tertian malaria and thirty-two with estivo-autumnal infection, a total of eighty-three cases. In considering them it should be remembered that these patients were liable to reinfection, though the area involved is not considered heavily infected. In the follow-up work on these patients the demands of country practice sometimes caused difficulty in securing blood smears at times desired. With the aid of a nurse follow-up smears were eventually made on most of the patients in the fall of 1931 and spring of 1932, and by this means we have been able to list a number of "cures," meaning by this patients who without further treatment, so far as could be learned, remained well a hundred days and showed after this time a negative blood smear. Relapse may occur in malaria even later than this, but a relapse could not in any case be distinguished from a reinfection. Negative blood smear does not, of course, exclude presence of parasites in the body.

The results are shown in the table, and may be briefly summarized as follows: Quinidine sulphate in dose of 10 grains once daily for four days caused abrupt termination of the chills so that only four of forty patients had even one more chill after the first dose; no patient on quinidine had more than one. On quinidine the patients averaged less than two days of fever. The number of days to clinical recovery averaged less than six. The percentage of "cures" judged by absence of symptoms for a hundred days subsequent and a negative smear a hundred days or more later was 57 per cent in benign tertian malaria, and 47 per cent in estivo-autumnal infection. Because of the difficulty of securing smears in some other cases in which "cure" might have been obtained in this sense these figures are probably low rather than high. It is astonishing that so high a proportion as 50 per cent should obtain with so mild a treatment, especially as these patients were liable to reinfection. Only four of forty patients required further treatment within thirty days. Twenty were Negroes.

Of the forty-three patients treated with quinine sulphate in similar dosage, all but two were Negroes, and supposed therefore by some to have more natural resistance to malaria, but twenty had one or more chills subsequent to beginning treatment; the days of fever averaged about four, and the days to clinical recovery just over ten. This seems to show quinidine a little superior, but one has to consider that quinidine sulphate is nearly ten times as soluble as quinine sulphate and contains a higher percentage of alkaloid, about 82 against 73 per cent in quinine sulphate. These factors may help to account for the slightly better results from quinidine. With quinine seven of forty-three patients required further treatment within thirty days.

In 104 cases in which quinidine was used in the years 1930-1931, a case was noted of slight cardiac irregularity, occurring an hour or so after the dose, and not recurring if the patient stayed in bed. Two pregnant patients were given quinidine for malaria in the fourth and eighth month, respectively, without any ill effect to child or mother. No patient has complained of any ill effect from quinidine except the one previously mentioned, not even of cinchonism.

COMMENT

We are not advocating, except for experimental use, the method of treatment used in this series. The National Malaria Committee plan of treatment,[24] evolved largely from the data collected by Bass [25] on 25,000 cases, calls for 10 grains of quinine sulphate three times a day for three or four days and then once a day for eight weeks. Our results tend to support the conclusion that 30 grains a day in the initial stages is sufficient [26] to remove the danger of the acute attack in malaria. With 105 consecutive patients with positive smears, the plan of giving only one 10 grain dose a day of quinidine or quinine sulphate was rigidly adhered to. Many of these patients were severely ill; temperatures up to 106 F. were noted, and some patients were delirious. All took the alkaloid by mouth, usually in capsules, but in a few cases in solution.

In evaluating any method of treatment it must be borne in mind that in untreated malaria, as in many other diseases, while the outcome may be fatal, remissions, sometimes long, may spontaneously occur.[27] There is a natural resistance to the infection, varying with the individual. The mechanism involved is unknown. Quinine probably does not act directly on

23. Stephens, J. W. W.; Yorke, Warrington; Blacklock, B.; MacFie, J. W. S.; Cooper, C. Forster and Carter, H. F.: Oral Administration of Quinine for Two Consecutive Days Only in Simple Tertian Malaria, Ann. Trop. Med. **11**: 283 (Jan.) 1918.

24. Report of the Subcommittee on Medical Research of the National Malaria Committee, November, 1919, The Treatment of Malaria, Pub. Health Rep. **34**: 2959, 1919. Compare Sinton, J. A.: A Suggested Standard Treatment of Malaria Based upon the Results of the Controlled Investigation of Over 3,600 Cases, Indian M. Gaz. **65**: 603 (July) 1930.

25. Bass, C. C.: Studies on Malaria Control, II. The Treatment of Malaria, with the Special Object of Disinfecting Infected Persons, Adopted After Wide Experience in Malaria Control by Treating Malaria Carriers in the Mississippi Delta, J. A. M. A. **72**: 1218 (April 26) 1919.

26. Bass, C. C.: Specific Treatment of Malaria, New Orleans M. & S. J. **74**: 521 (Jan.) 1922.

27. Boyd, Mark F.: An Introduction to Malariology, Cambridge, Mass., Harvard University Press, 1930.

the parasite: whether it increases natural resistance or activates some special mechanism for destroying the parasites is unknown.[28] Yorke [29] and Sinton [30] find it conceivable that excessive dosage or prolonged administration of large doses may hinder cure; the plan used in the present series certainly does not err in that direction.

CONCLUSIONS

1. The antimalarial efficacy of quinidine is confirmed.
2. Trial of the drug in a total of fifty-seven cases of malaria with positive smears in a country practice in Louisiana in 1930 and 1931 has revealed no inferiority to quinine. Of these cases, thirty-three were benign tertian and twenty-four estivo-autumnal.
3. A 10 grain dose of quinidine sulphate once daily about three hours before chill time rapidly removed the acute dangers of malarial fever in all cases.
4. The same dose once daily for four days was effective and did no harm in two pregnant patients.
5. Quinidine is recommended for trial as a quinine substitute in cases of asthmatic, coryzal or urticarial reaction to quinine, or in cases of malaria in which the response to quinine is poor.

ABSTRACT OF DISCUSSION

DR. W. J. SANDIDGE, Shreveport, La.: In the northwestern section of Louisiana, where this work was done, conditions were favorable for doing the work. Many of the patients are plantation Negroes, who are living, for the most part, in unscreened homes. Malaria is fairly prevalent in the section and numerous bayous, ponds and small bodies of water furnish ideal breeding places for anopheles mosquitoes. These Negroes seldom move far and the doctor is in rather close contact with the patients most of the time. Except in a small percentage of cases, if the patient relapses, Dr. Sanders would know about it. He is in more direct contact with his patients than most city doctors. In plantation practice on the river sections, if a Negro doesn't get well, the planter wants to know about it and he gets in touch with the doctor. Thick smears were taken at the time clinical diagnosis was made. These thick smears were stained with Giemsa's stain. We felt that with this method we were able to find a higher percentage of positives than with the ordinary thin smear method. As every one knows, a negative blood smear does not necessarily mean that the patient has at that time no parasites in his blood. Follow-up slides and follow-up clinical histories were taken on a few of these cases by Dr. Sanders himself. A public health nurse from Shreveport took most of the follow-up slides and clinical histories. Part of the follow-up slides were taken in duplicate and one set sent to the United States Public Health Service Laboratory at Greenwood, Miss., as a check. The follow-up histories taken by the nurse were unbiased. Neither she nor, in most cases, the patient knew which alkaloid had been given. The nurse questioned closely as to the number of chills, days of fever, and number of days of convalescence after the initial dose. The percentage of error should be about equal in the two series of cases. A few patients cannot take quinine, because of an idiosyncrasy. When such patients contract malaria, they are a difficult problem. Arsenicals are poor substitutes for quinine in treating such cases. Plasmochin is probably dangerous in a small percentage of cases and is not effective in estivo-autumnal malaria. In the cases reported here, I am convinced that quinidine is at least equal to quinine in its antimalarial value. It occurs to me that cases of malaria resistant to quinine might possibly improve more rapidly under quinidine therapy.

28. Sollmann, T.: Manual of Pharmacology with Applications to Therapeutics and Toxicology, ed. 4, Philadelphia, W. B. Saunders Company, 1932.
29. Yorke, Warrington: Further Observations on Malaria Made During Treatment of General Paralysis, Tr. Roy. Soc. Trop. Med. & Hyg. **19**: 108 (Sept.) 1925.
30. Sinton, J. A.: Studies in Malaria with Special Reference to Treatment: XIV. The Effects of Dosage of Drugs and Duration of Treatment on Production of Cure, Indian J. M. Research **18**: 831 (Jan.) 1931.

Clinical Notes, Suggestions and New Instruments

AMPUTATION OF ARM OF PATIENT WITH HEMOPHILIA

ALFRED BLALOCK, M.D., NASHVILLE, TENN.

This report of the successful amputation of an arm of a patient with hemophilia is given because of the unusual difficulties that were encountered.

J. B. S., aged 39, entered the Vanderbilt Hospital forty-eight hours following an accident in which he was struck by a truck. He was unconscious most of the time between the accident and his admission to the hospital. Examination showed that the patient was extremely ill. The systolic blood pressure was 85 mm. of mercury and the diastolic 60. He was pale and sweating profusely. The right arm and hand were greatly swollen. There were ecchymoses in the region of the left wrist. The right hip was swollen and tender. Air was present in the soft tissues of the right side of the chest. Roentgen examination of the chest revealed fractures of seven ribs on the right side, three of the ribs being fractured in two places. Fluid was present in both pleural cavities.

The patient was given 600 cc. of salt solution intravenously immediately after entering the hospital. The systolic blood pressure rose to 100 but declined in a short while to the previous level. He was then given a transfusion of whole blood; the blood pressure became elevated and remained so for two hours, when again it declined to a low level. A second transfusion caused a sustained rise in the blood pressure.

Examination of the patient's blood shortly following admission to the hospital showed the clotting time to be thirty-five minutes. The red blood cell count was two million, the hemoglobin 45 per cent and the platelets 360,000. It was found on questioning relatives that the patient had almost bled to death on several occasions following minor injuries. Several of his joints had been swollen and painful at times. One brother and two maternal uncles died from hemorrhage. It was stated that the patient's maternal grandmother had spoken of relatives of hers who were bleeders, but information on this point was not definite.

The general condition of the patient was much improved the day following his admission to the hospital. The blood pressure was normal. The right arm and hand were greatly swollen and there was an absence of sensation and motion of the right hand. Two days later the swelling of the right upper arm and forearm had definitely lessened and beginning gangrene of the right hand was noted. A line of demarcation was present just above the wrist. The gangrene was at first of the dry type. Large blebs containing clear fluid later appeared on the right hand. Thirteen days following his admission to the hospital the clotting time was one hour and forty-five minutes. At that time the daily subcutaneous injection of an ovarian preparation obtained from the fetal fluid of cattle was begun. One week later the clotting time was two hours and five minutes. After the patient had been in the hospital four weeks the right forearm became red and swollen and the right hand bled slightly at each dressing. The temperature rose to 104 F. Three days later blood began to spurt from an artery at the base of the thumb. This was controlled by the application of a tourniquet above the wrist. The patient was then taken to the operating room.

The patient was prepared for an amputation across the midportion of the upper arm. This was performed under nitrous oxide-oxygen anesthesia supplemented by a small amount of ether. A tourniquet was not applied proximal to the site of the amputation as it was feared that this would result in hemorrhage into the compressed tissues. Hemostasis was procured by ligating with catgut ties previous to its division every bit of soft tissue excepting the skin. The bone and large vessels were divided at the same level as the skin, as it was feared that the freeing of them from the surrounding tissues would result in hemorrhage that could not be controlled. No attempt was made to close the skin over the end of the stump. At the completion of the operation there was a small amount of oozing from the

From the Department of Surgery of Vanderbilt Hospital.

small vessels. An attempt was made to stop this by applying a 3 per cent solution of tannic acid to the raw surfaces. A snug dressing was applied.

A slow but steady loss of blood continued for more than two weeks following the operation. At this time a thromboplastic substance was given by mouth, but it is believed that the cessation of hemorrhage was due to the fact that the raw surfaces were almost covered by skin. During the period in which the loss of blood occurred, a direct transfusion was given approximately every third day.

The patient was discharged from the hospital seven weeks following the operation. The amputation stump had healed. The clotting time was two hours.

SERUM DISEASE: REPORT OF CASE FOLLOWING INJECTION OF HOMOGENOUS SERUM

PARKER DOOLEY, M.D., KENT, CONN.

A boy, aged 14 years, returned to boarding school, Sept. 28, 1931, for the opening of the term. Because he came from a vicinity in which poliomyelitis was then epidemic and because he had been intimately associated with an older brother who was acutely ill at home, the boy was isolated in the school infirmary at once and remained there throughout the period covered in this report. On the morning of October 5, the older brother died of bulbar poliomyelitis. In the hope that it might have some prophylactic effect, the younger boy was given an intramuscular injection of 45 cc. of fresh immune serum in the left buttock. He had had no signs or symptoms of any illness. On the morning of the third day after the serum injection, he began complaining of headache, stiffness in his neck, and pain in the left groin. His temperature had risen from normal to 38.2 C. (100.7 F.). His face was flushed and he seemed quite uncomfortable. There was definite swelling and slight tenderness of the inguinal, cervical and left axillary lymph glands, all of which had been normal on the preceding evening. There was also a suggestion of generalized hyperesthesia and questionable stiffness of the neck, but otherwise the examination was entirely negative. Apprehension played no part in this picture, as the boy knew nothing of the nature or outcome of his brother's illness. At this time, it was assumed that the patient was in the early stage of a poliomyelitis infection despite the fact that the spinal fluid was negative. However, within three hours of the onset of the headache and rise in temperature, edema of the face developed, particularly about the eyes. Concomitantly, reddening and induration appeared about the site of the serum injection, and, within an hour or so, urticarial wheals began breaking out over his whole body. These wheals faded after the administration of epinephrine but kept recurring whenever the effect of the epinephrine wore off during the three days after their original appearance. The temperature remained elevated to 38 C. (100.4 F.) for one day, then fell to normal and stayed there. The stiffness of his neck subsided after the first day, but fleeting pains in his ankles and elbows annoyed him for two days thereafter. On the second and third days of his illness, a trace of albumin was found in the urine. Seventy-two hours after the first elevation in temperature, the signs and symptoms had disappeared and the spinal fluid was still normal. Since this episode, the boy has enjoyed his usual good health.

A careful review of the personal and the family history has shown no sign of any allergic tendency either in the boy himself or among his relatives. Except for typhoid vaccine and diphtheria toxin-antitoxin in 1930, he had never had any parenteral treatments. His diet before the onset of the illness had included nothing but the ordinary school fare, consisting of dishes which he was in the habit of eating with impunity. As he had been in the infirmary continuously, one could check over and exclude possible allergenic influences with unusual certainty. Apparently the only extraordinary occurrence between the time when he returned to school and the development of the reaction was the injection of the immune serum. This serum had been prepared, one week before its use, by pooling equal quantities of freshly drawn serum from three healthy individuals who had had attacks of poliomyelitis two years before. It had been stored in sealed glass containers at from 2 to 4 C., and was not only sterile at the time of injection but has remained sterile ever since. Comparable quantities of this pooled serum were used intramuscularly in three other persons without demonstrable effect.

Four weeks after the use of the immune serum, a series of skin tests were done on the patient with the results shown in the accompanying table. Of fourteen persons similarly tested with the immune serum, the patient alone reacted positively. At the same time, Prausnitz-Küstner [1] tests were made by injecting 0.1 cc. of the patient's serum intracutaneously into four normal persons, then injecting 0.01 cc. of the immune serum into the prepared sites on the following day. Two of the four persons showed positive reactions in the prepared sites, although the neighboring normal skin was not sensitive. The patient's blood was not tested for precipitins against the immune serum until five weeks after the first injection. At this time, it showed none.

COMMENT

Clinically this case presented a typical picture of serum disease. Whether this symptom complex was (1) an allergic response to the injected serum or (2) an idiosyncratic response to some decomposition product incidental to the preparation or storage of the serum or (3) a coincidental occurrence without relationship to the serum injection it is impossible to say. On theoretical grounds it would seem unlikely that the first consideration should be true, yet clinicians have reported a few instances in which the train of events following the injection of human serum suggested such sensitivity. Netter [2] saw an urticarial exanthem with joint and gland swellings occur three days after the last of four successive daily intrathecal injections of poliomyelitis convalescent serum. Marie,[3] while treating typhoid patients with convalescent serum, saw serum rashes develop in two patients, each of whom had received two intravenous injections at five day intervals, the one five days after the last injection, the other two days after. Precipitins against homogenous serums were found in the blood of the first patient but disappeared in three weeks after the rash. Tezner and Reiter [4] prophylactically immunized a group of babies against measles by means of intramuscular injections of human serum, then were forced to reimmunize seven of these babies four weeks later because of a second exposure. Several hours after the second injection, two babies developed local reactions about the sites of injection and later had urticarial rashes. Experimentally, these writers were unable to demonstrate a sensitization to human serum on intracutaneous injection of serum alone but could demonstrate sensitization when the sensitizing serum was injected in mixture with either vaccine or horse serum. Nathan and Grundmann [5] treated a man with gonorrhea by means of subcutaneous injections of citrated whole blood at intervals of approximately four days, until, three days after the fourth injection, edema, erythema, and infiltration about the site of the last injection developed. Not only the following week, but also a year later, local reactions developed when his skin was tested with 0.1 cc. quantities from different individuals. Prausnitz-Küstner reactions were negative. In treating tuberculous patients by means of subcutaneous injections of serum

Skin Tests

Intracutaneous Injection (0.1 Cc.)	Wheal	Erythematous Infiltration
Pooled immune serum	1.5 cm.	8 cm.
Single immune serum	0	0
Autoserum	0	0
Normal human serum (1)	0	0
Normal human serum (2)	0	0
Normal human serum (3)	0	0
Normal horse serum	0	0
Tetanus antitoxin	0	0
Washed erythrocytes (1)	0	0

1. Prausnitz, C., and Küstner, H.: Studien über die Ueberempfindlichkeit, Centralbl. f. Bakt., Orig. **86:** 160, 1921.
2. Netter, Arnold: Un cas de maladie sérique après injection de sérum humain, Compt. rend. Soc. de biol. **78:** 505, 1915.
3. Marie, P. L.: Accidents sériques chez l'homme consecutifs a l'injection intraveineuse de sérum humain, Compt. rend. Soc. de biol. **79:** 149, 1916.
4. Tezner, O., and Reiter, F.: Ueberempfindlichkeitserscheinungen nach Injektion arteigenen Serums, Ztschr. f. d. ges. exper. Med. **72:** 666, 1930.
5. Nathan, E., and Grundmann, H.: Experimentell Erzeugte Ueberempfindlichkeit der menschlichen Haut gegenüber arteigenem Serum, Klin. Wchnschr. **10:** 2169 (Nov. 21) 1931.

obtained from autovesication of the skin, Nelli[6] had a patient who had joint pains, albuminuria, urticaria and fever coming on twenty-four hours after the last of seven weekly injections.

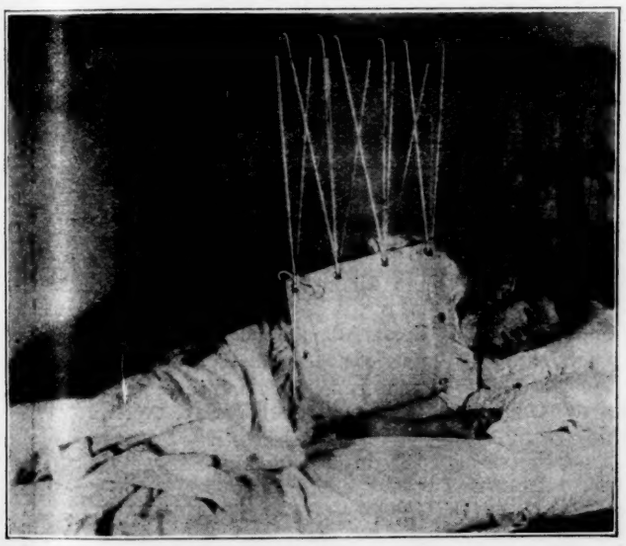
There is a suggestive analogy between these reactions following injections of homogenous serums and that type of post-transfusion reaction in which one sees fever, edema, urticaria, vomiting, respiratory distress, hemoglobinuria, or other "allergic" manifestations.

SLING USED IN THE POSTOPERATIVE TREATMENT OF THORACOPLASTY

ALANSON WEEKS, M.D., AND G. D. DELPRAT, M.D.
SAN FRANCISCO

Slings as shown in the accompanying illustrations have been used by us in the postoperative treatment of patients who have been subjected to the operation of thoracoplasty. The sling is composed of a canvas strip 18 inches wide and 3 feet long, with perforations along the two ends through which a rope may be passed. This canvas sling is supported by means of a cord to a single cross piece on a balkan frame. The ropes are adjusted in such a way that the patient's chest is kept well away from the bed, thus lifting the weight from the shoulder; and the head of the patient is supported on pillows raised to the necessary height.

Previous to the use of this sling, patients were laid in bed on the side that had been operated on and were supported by pillows. It was found, however, that it was difficult to obtain



Patient supported in sling showing the lack of pressure upon the left shoulder and the freedom of motion in the left upper arm. Operation on the left side.

satisfactory pressure on the upper portion of the chest, since the upper ribs were protected to a considerable extent by the shoulder girdle. Furthermore, such a position to be maintained for any length of time became uncomfortable and irksome to the patient. With the use of the sling as illustrated, practically the entire weight of the patient's torso is used to compress the side that has been operated on and considerable motion can be allowed by raising or lowering the ropes supporting either the front or the back end of the sling, so that the patient can be rolled partly on his face or partly on his back. Such a change of position adds materially to the patient's comfort. The arm of the side that has been operated on can be moved fairly freely beneath the sling and is not continually in the way or continually pressed on as in the old method of pillow support. The entire sling is let down when the dressings are changed, and it is also let down for short periods of time during the day. As a rule patients have not complained that the apparatus is uncomfortable, and patients have been kept in this support from two to eight weeks following operation.

Fitzhugh Building.

6. Nelli, A. R.: Autoanafilassi in corso di autosieroterapia da vesicante, Rinasc. med. 7: 523 (Nov. 1) 1930.

From St. Luke's Hospital.

Council on Pharmacy and Chemistry

PRELIMINARY REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT.

P. N. LEECH, Acting Secretary.

TRICHOPHYTON EXTRACT (METZ TRICHOPHYTIN)

Trichophyton Extract (Metz Trichophytin) is a mixture of the filtrates of various species of trichophyton submitted for consideration of the Council by the H. A. Metz Laboratories, Inc. The commercial product is stated to contain the "Extract of various species of trichophyton mixed in the proportion of approximately 40% T. gypseum, 20% T. cerebriforme, 20% T. microides, 20% T. rosaceum, violaceum and crateriforme in equal parts." A consultant of the Council asked the firm what was meant by "T. microides," since the term "microides" applies to a group comprising no less than eighteen species. The firm replied that it was informed by the I. G. Farbenindustrie A. G., manufacturer of the product, that the species entering into the composition of this trichophyton extract is "T. microides Sabouraud, classified according to the French system," and promised additional data as soon as further investigation could be made. At this date the consultant has received no further information.

In this issue of THE JOURNAL, page 1759, appears a report by Sulzberger and Wise, giving their experience in the use of a trichophyton extract in diagnosis and desensitization of the secondary eruptions (dermatophytids) due to dissemination of harmful agents from a primary tinea infection (dermatophytosis). They used three preparations; one of these was Metz Trichophytin. From the report of these investigators, it would seem that trichophyton extract is of some value in diagnosis and in treatment of certain cases, in the hands of certain individuals; but apparently the technic is difficult, and some patients may be seriously harmed by inexperienced practitioners.

Since there appears to be a wide and satisfactory use of such a preparation in Europe, the Council was disposed to look favorably on Trichophyton Extract (Metz Trichophytin) as a diagnostic agent, but for lack of evidence refused to consider it as promising for treatment. Two dermatologists, consultants of the Council, were asked as to (1) their opinion as to the value of Metz Trichophytin in diagnostic procedures, (2) whether they had observed any false positives, and (3) whether they could recommend it for therapeutic purposes.

The first consultant replied in part: "1. The value of Trichophyton Extract as a diagnostic means has not been established. Coincident tuberculosis complicates the situation, and recently it has been claimed that false positives develop as the result of the preparation becoming contaminated. The direct examination of scrapings from the skin is a simpler procedure, and the positive findings unequivocal. Hence it is only in the residue, i. e., microscopically negative cases, that Trichophyton Extract could find place. 2. I have not worked with this preparation at all extensively and cannot report any personal experiences that will be of value to you. This phase of fungus biology has been so unpromising that it will be the last into which I should start. 3. No. The favorable reports are scattering at best. There are even fewer proponents in this field than in the diagnostic."

The second consultant replied: "1. I believe that Trichophytin is of distinct value in the study of ringworm infections and that reactions sometimes give a clue as to the cause of eczematous eruptions. It can hardly be said to be of definite diagnostic value at present, as more experience is necessary before any one can really evaluate the reactions obtained. However, almost the same thing can be said of tuberculin and I think it strongly desirable that a reliable preparation of trichophytin should be available commercially for the use of dermatologists. 2. We have obtained many reactions where we believed that there was no active trichophytosis. Further experience may make it possible to differentiate reactions that are of diagnostic significance. 3. We have had an apparent cure of ringworm of the beard under trichophytin. Its therapeutic possibilities need further study."

Since there appears to be a disagreement as to the value of Trichophyton Extract (Metz Trichophytin), the Council postponed consideration of the product to await the development of further clinical evidence from American dermatologists and authorized publication of this preliminary report.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

CRESCA CHOICEST SMYRNA LOCOUM FIGS. NOT SULPHURED

Importer and Distributor.—Cresca Company, Inc., New York City.

Description.—Partially dried cooked Cresca Smyrna Locoum figs from Asia Minor.

Manufacture.—Choice Cresca figs grown in Asia Minor are used. The fruit is allowed to dry partially on the tree, is picked and is further dried on trays in the sun. The sound and tender figs are packed in "vacuum" tins so as to remain free from insect development during shipment to the United States, where they are immediately placed in cold storage.

The cold storage figs are washed with hot water, cooked in a solution of glycerin and fig syrup (water extract of figs), removed from the solution, strained, cooled and packed in packages and jars. Only the soundest figs are packed in this way. The figs in jars are sealed under "vacuum" and processed at 82-93 C. Other figs are packed in cellophane packages.

Analysis (submitted by manufacturer).—

	per cent
Moisture	27.9
Ash	2.2
Fat (ether extract)	0.4
Protein (N × 6.25)	3.0
Reducing sugars as dextrose before and after inversion	51.3
Sucrose	0.0
Crude fiber	7.4
Carbohydrates other than crude fiber (by difference)	59.1

Calories.—2.5 per gram; 71 per ounce.

Claims of Manufacturer.—These packaged figs with unimpaired flavor are ready to eat.

(a) QUEEN OF KANSAS FLOUR (BLEACHED) (b) FARMER BOY FLOUR (BLEACHED) (c) COUNTRY GENTLEMEN (BLEACHED) (d) PERFECTION FLOUR (BLEACHED)

Manufacturer.—(*a*) Monarch Milling Company, (*b*) (*c*) Farmers Wholesale Company, (*d*) Interior Flour Mills Company, subsidiaries of Commander-Larabee Corporation, Minneapolis.

Description.—Hard winter wheat "straight" flour; bleached.

Manufacture.—Selected hard winter wheat is cleaned, washed, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. The flour streams are blended and bleached with a mixture of benzoyl peroxide and calcium phosphate (three-fourths ounce per 196 pounds) and with nitrogen trichloride (from 1/15 to 1/5 ounce per 196 pounds).

Analysis (submitted by manufacturer).—

	per cent
Moisture	13.0 –14.5
Ash	0.44– 0.50
Fat (ether extraction method)	0.8 – 1.5
Protein (N × 5.7)	9.9 –11.0
Crude fiber	0.2 – 0.4
Carbohydrates other than crude fiber (by difference)	75.7 –72.5

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—These flours are designed especially for commercial bread baking.

RUMFORD BAKING POWDER

Manufacturer.—Rumford Chemical Works, Rumford, R. I.

Description.—A phosphate baking powder containing corn starch, sodium bicarbonate, monocalcium acid phosphate and 0.1 per cent dried egg white.

Manufacture.—The monocalcium acid phosphate ingredient is prepared by mixing in proper proportions purified phosphoric acid and a very pure lime. The phosphoric acid is manufactured by the company from Florida rock phosphate and the lime from Vermont marble. The monocalcium acid phosphate is dried, ground and sifted to a desired granulation and is admixed with sodium bicarbonate, corn starch and dried egg white in calculated proportions to construct the final Rumford Baking Powder, which is automatically packed in tins.

All the raw materials and the process of manufacture are under careful control both as to impurities and as to quality.

Analysis (submitted by manufacturer).—

	per cent		per cent
Total carbon dioxide (CO_2)	14.5		
Available carbon dioxide (CO_2)	12.8		
Phosphorus as P_2O_5	18.28	....as P	8.00
Sulphur as SO_3	0.16	....as S	0.08
Calcium as CaO	7.20	....as Ca	5.10
Magnesium as MgO	0.40	....as Mg	0.24
Iron as Fe_2O_3	0.15	....as Fe	0.11
Sodium as Na_2O	10.23	....as Na	7.59
Fluorine as F	0.056		
Dry starch	38.2		
Egg white	0.1		
Moisture, by difference	10.8		
Arensic (Berzelius Marsh method) parts per million	0.0		
Lead (Bryan Corper method by electric precipitation) parts per million	less than 5.0		

Calories.—1.5 per gram; 43 per ounce.

Claims of Manufacturer.—This baking powder is for use in all baking and cooking recipes calling for baking powder. The product has nutritional value for supplementing the diet with calcium and phosphorus.

WHITE HOUSE BRAND UNSWEETENED EVAPORATED MILK

Manufacturer.—White House Milk Company, Inc., Manitowoc, Wis.

Distributor.—The Great Atlantic and Pacific Tea Company.

Description.—An unsweetened sterilized evaporated milk.

Manufacture.—The milk is collected and concentrated according to standard procedures (THE JOURNAL, April 16, 1932, p. 1367).

Analysis (submitted by manufacturer).—

	per cent
Moisture	73.9
Total solids	26.1
Ash	1.5
Fat	7.9
Protein (N × 6.38)	6.8
Lactose (by difference)	9.9

Calories.—1.4 per gram; 40 per ounce.

Vitamins and Claims of Manufacturer.—See announcement of acceptance of Evaporated Milk Association Educational Advertising (THE JOURNAL, Dec. 19, 1931, p. 1890).

FOX'S BREAD

Manufacturer.—Edward Fox Baking Company, York, Pa.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, page 817) prepared from patent flour, water, sucrose, powdered skim milk, shortening, salt, yeast, malt syrup and a yeast food mixture of calcium acid phosphate, ammonium sulphate, sodium chloride, potassium bromate, potassium iodate and corn starch.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	35.8
Ash	2.2
Fat	2.7
Protein (N × 6.25)	12.2
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	46.7

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—Conforms to U. S. Department of Agriculture definition and standard for white bread.

HYLAC

A Modifier of Cow's Milk for Infants

Manufacturer.—Nestlé's Milk Products, Inc., New York.

Description.—Spray dried homogenized mixture of milk, added milk fat and lactose, malted whole wheat extract (essentially dextrins and maltose) and a small quantity of iron citrate.

Manufacture.—The milk and cream ingredients are collected from tuberculin tested healthy cows under prescribed conditions and in accordance with definite regulations enforced by the company's inspectors. Bacteria plate counts are made daily as a further check on quality. The lactose ingredient is U. S. P. lactose. The mixture of milk, milk fat and lactose is pasteurized, homogenized by being forced under high pressure through small apertures, and cooled.

The malted whole wheat extract ingredient is prepared by malting a mash of crushed whole wheat with barley malt. The starch is completely converted to maltose and dextrins. The mash is filtered and the filtrate concentrated "in vacuum" at a low temperature.

The malt extract and a small quantity of iron citrate are mixed with the milk, milk-fat, lactose mixture; the final mix is sprayed into an atmosphere of hot filtered air in a drying chamber; the fine dry solids are continuously removed from the bottom of the chamber, rapidly cooled and packed in an atmosphere of nitrogen gas in hermetically sealed tins. All processes of manufacture are carried out at moderately low temperatures to minimize the destructive action of heat on the vitamins.

Analysis (submitted by manufacturer).—

	per cent
Moisture	2.0
Ash	2.0
Fat (ether extract)	21.5
Protein (N × 6.25)	5.5
*Lactose	17.0
*Reducing sugars as maltose	24.0
*Dextrins (by difference)	28.0
Iron (Fe)	0.0036

* Estimated from analysis of formula components.

Calories.—4.9 per gram; 139 per ounce.

Claims of Manufacturer.—The addition of prescribed proportions of Hylac to proper dilutions of cow's milk with water produces formula preparations approximating human milk in percentages of fat, protein and carbohydrate and in caloric value; to be fed to infants under the direction of the physician.

McCORMICK'S ENGLISH MUSTARD FLOUR

Manufacturer.—McCormick & Company, Inc., Baltimore.

Description.—Mustard flour prepared from English mustard.

Manufacture.—Lincolnshire and Essex County (England), selected, ripe, clean, mustard seed is used. The seed is stored for proper aging to develop the desired flavor for a table mustard; is cleaned in centrifugal machines to remove foreign material and imperfect seeds; is dehulled by cracking the seeds by machine and by separating the hulls from the soft powdery endosperm by sifting. The dehulled material is ground between rolls, bolted and packed in tin containers. The final product is almost entirely free from mustard hull materials.

Analysis (submitted by manufacturer).—

	per cent
Moisture	4.8
Total ash	4.1
Water soluble ash	0.2
Acid insoluble ash	0.05
Fat (ether extract)	35.7
Total nitrogen	5.3
*Acrinyl isothiocyanate nitrogen	0.17
*Allyl isothiocyanate nitrogen	0.05
*Sinapine isothiocyanate nitrogen	0.56
Total nonprotein nitrogen	0.78
Protein nitrogen (by difference)	4.5
Protein (protein-N × 6.25)	28.3
Allyl isothiocyanate	0.4
Acrinyl isothiocyanate	2.0
Sinapine isothiocyanate	7.4
Sucrose	0.0
Reducing sugars as dextrose	0.0
Starch (diastase method)	0.5
Crude fiber	2.3
Carbohydrates other than crude fiber (by difference)	15.0

* Method of company's laboratory.

Calories.—4.9 per gram; 139 per ounce.

Claims of Manufacturer.—The mustard flour is for table and cooking use and for the home preparation of mustard plaster, poultice, foot bath and emetic.

GIBBS TOMATO JUICE

Manufacturer.—Gibbs and Company, Inc., Baltimore.

Description.—Canned tomato juice retaining in large measure the natural vitamin content of the raw tomato juice; seasoned with a small quantity of salt.

Manufacture.—Ripe tomatoes immediately after harvesting are carefully assorted; inferior or moldy tomatoes are discarded. They are scalded, peeled, cored and any blemishes are removed. The juice is expressed in a steam atmosphere by a special extractor, pumped into nickel tanks heated to 71 C., and a small amount of salt is added. The mixture is drawn off to filling machines into cans which are closed, processed for twelve minutes at 100 C., immediately cooled and labeled.

The procedure of preparation avoids the incorporation of air in the juice and is designed for efficient protection of the natural vitamin content.

Analysis (submitted by manufacturer).—

	per cent
Moisture	95.0
Ash	1.0
Salt (NaCl)	0.6
Fat (ether extract)	0.5
Protein (N × 6.25)	0.9
Reducing sugars as invert	2.1
Crude fiber	0.1
Carbohydrates other than crude fiber (by difference)	2.5

Calories.—0.2 per gram; 6 per ounce.

Vitamins.—The selection of high quality, matured, vine ripened tomatoes assures the vitamin content of the material used for the preparation of the juice. The construction and operation of the press and other equipment, the expression of the juice in a steam atmosphere, and the avoidance of admixture of air with the juice at all stages of the process assure a high retention of the vitamin content of the original juice.

Claims of Manufacturer.—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C; for infant feeding and general table use.

DR. P. PHILLIPS FLORIDA FANCI-CUT GRAPEFRUIT SLICES

(With Added Cane Sugar)

Manufacturer.—Dr. P. Phillips Company, Doctor Phillips, Fla.

Description.—Canned sliced Florida grapefruit sweetened with added sucrose and retaining in large measure the original natural vitamin content.

Manufacture.—Mature fruit is graded, inspected for quality and washed and scalded by machine. The scalding loosens the skin, which is removed by hand. The peeled fruit in wire baskets is sprayed with alkali solution to remove adhering peel particles, is thoroughly washed, and is conveyed to sectioning tables, where gloved workers separate the fruit by hand into sections, which are placed in cans, and sucrose syrup is added for sweetening. The open cans are exhausted to remove most of the air; the cans are sealed, heated in a hot water bath (79 C.) for fifteen minutes, cooled and labeled.

A machine method is also used for slicing the fruit. All metals with which the fruit comes in contact are of stainless steel monel metal.

Analysis (submitted by manufacturer).—

	per cent
Moisture	84.9
Ash	0.4
Fat (ether extract)	0.2
Protein (N × 6.25)	0.5
Reducing sugars as invert	9.1
Sucrose (copper reduction method)	2.9
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	12.0
Acidity as citric acid	1.3

Calories.—0.6 per gram; 17 per ounce.

Vitamins.—Assay demonstrated that from 1.2 to 1.5 Gm. daily was the minimum protective dose against scurvy for 300 Gm. guinea-pigs. The minimum protective dose of juice of fresh grapefruit on the northern market was 2.5 Gm.

Claims of Manufacturer.—This canned sweetened sliced grapefruit retains practically all the nutritional values of the natural fresh fruit and is intended for all the dietary and table uses of grapefruit.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 19, 1932

THE THYMUS AND ITS FUNCTION

The functions of the thymus gland are still a mystery. Even its anatomy is controversial. Generally it is believed that the gland in some way is correlated with the process of growth and that after puberty it undergoes a gradual atrophy and involution. There is also presumed to be some reciprocal relation between the thymus and the reproductive glands. A more precise hypothesis is that proposed by Klose and Vogt,[1] who hold that the thymus is concerned especially in the synthesis of nucleic acid.

Hammar,[2] who has studied more than a thousand human thymus glands, concludes that the variations in the lymphocytic content of the thymus and the variations in the Hassall corpuscles constitute the essential morphologic changes associated with thymic function. Every theory as to the physiology of the thymus must explain these histologic changes. There is apparently an increase in the development of Hassall corpuscles in various toxic conditions except intoxication by drugs. Since the thymus is essentially an epithelial organ filled with lymphocytes, Hammar thinks that it exerts an antitoxic action against certain poisons, and he suggests that the Hassall corpuscles are the morphologic exponents of this antitoxic function. In thirty-seven cases of so-called thymic death, Hammar studied the gland and concluded that the thymus was not directly concerned and that the apparently large size of the gland was due to the absence of accidental involution.

Recent Belgian investigators have attempted to clarify concepts on the thymus by experimental and microscopic studies. P. Bastenié[3] studied 180 human thymus glands covering the period from the fetus to senility. Specific lesions were rare, but the organ seemed to be sensitive to general pathologic changes in the body and reacted by involution or, more rarely, by hypertrophy. On the basis of his studies, he concludes that the Hassall corpuscles are not organs of internal secretion; they merely phagocytize the thymic chromatin that has disintegrated. Various alterations and diseases, such as trauma, operative shock and acute infections, seemed to induce a rapid, massive disintegration of thymic cells and the appearance of numerous young Hassall corpuscles. Starvation and chronic infections provoked a relatively slow thymic involution of the sclerotic type found in inanition. Diseases accompanied by starvation seemed to offer the best conditions for the gradual involution of the thymus, associated with "epithelial reversions." In two cases of exophthalmic goiter the thymus gland showed a hyperplasia due to accumulation of thymic cells and evidence of a recent crisis of nuclear disintegration. Several cases of "thymic death" failed to reveal any lesion in the thymus gland which might explain this mysterious syndrome.

Bastenié states that the disappearance of thymic cells in the course of pathologic involution is not due to their emigration but to their destruction in situ. He notes further that the development of the Hassall corpuscles is linked with the destruction of the thymocytes. Involution of the thymus is a simple reaction occurring in any involvement of the general condition and is not due to any particular disease or intoxication. Moreover, Bastenié does not find any basis for the theory of Hammar that the thymus develops an antitoxic secretion but he does find more evidence in favor of the nuclein regulation theory. Finally, he notes that in the course of pathologic involution as well as of physiologic involution the thymus shows the same reactions of thymoclasis. This seems to indicate, according to Bastenié, that in physiologic as well as in pathologic conditions the thymus acts as an organ of nuclein regulation.

Grégoire[4] has studied the effect of x-rays on the thymus in embryos and in adults, particularly from the point of view of radiosensitivity of the small thymic cells, the nature of the phagocytic process, and the mechanism of reparation. He points out that there are two schools of thought as to the origin of the small thymic cells. The one school (His, Hammar, Maximow) believes that the thymic cells are formed by the immigration of lymphocytes into the thymus. The other school (Kölliker, Stöhr, Dustin) urges that the large epithelial cells are the ancestors of the small thymic cells. Grégoire has studied the thymus gland in guinea-pigs, cats and chicken embryos. He concludes that the small thymic cells develop from the primitive epithelial cells within the thymus and that there is no immigration of exogenous cells. This transformation occurs through a type of diminutive mitosis, especially characteristic of the thymus (elassosis), first described by Dustin. The appearance of radiosensibility in the small thymic cells of the embryo corresponds with the stage of diminutive mitosis which gives origin to the

1. Klose, H., and Vogt, H.: Klinik und Biologie der Thymusdrüse, Beitr. z. klin. Chir. **69**:1, 1910.
2. Hammar, J. A.: Der Menschenthymus: I. Das normale Organ, 1926; II. Das Organ unter anormalen Körperverhältnissen, 1929.
3. Bastenié, P.: Contribution à l'anatomie pathologique des thymus humains, Arch. internat. d. méd. exper. **7**: 273 (April) 1932.
4. Grégoire, Charles: Contribution expérimentale à l'étude du thymus des mammifères, Arch. internat. d. méd. expér. **7**: 513 (Aug.) 1932

small thymic cells. X-rays selectively destroy the small thymic cells on their appearance. Grégoire reports that pregnancy induces in the thymus a transient reversible involution in an organ already undergoing physiologic involution more or less pronounced according to the age.

In the embryo as well as in the adult, this investigator observed tissue continuity between the thymus and the parathyroid glands, as well as the direct formation of parathyroid tissues at the expense of the thymus epithelial cells, a fact previously described by Winiwärter. Grégoire has also called attention to the absence of Kurloff bodies in the thymus cells of the normal embryo. They were observed in considerable numbers in the thymus of the pregnant animal after irradiation. The Kurloff bodies, he says, are merely degenerative figures. He remarks that cellular metaplasia is a phenomenon peculiar to the thymus and is produced by frequent changes in the cortical region, and by the absence of a pathway for the elimination of cellular débris.

These Belgian studies tend to clarify some of the disputed points in the morphology and histogenesis of the thymus cells and Hassall corpuscles. The theories as to thymic physiology have been critically revised on the basis of these studies. Although a vast amount of conscientious work has been done, the thymus still maintains much of its sphinx-like mystery. Perhaps present methods of inquiry are inadequate or insufficient to elicit a clear solution.

ARTIFICIAL BACTERIOPHAGE

For a decade, clinicians have been familiar with the "bacteriophage" pictured as a living parasite, a submicrobe preying on pathogenic bacteria. The accumulating experimental evidence in support of the nonvital nature of this "lytic unit" seems to have been largely ignored.

A clear presentation of the nonvital hypothesis is contained in a summary of research on bacteriophage in the Biochemical Institute, Moscow. Jermoljewa, Bujanowskaja and Severin [1] state that by certain ultrafiltration methods the specific lytic component in bacteriophage-lysed cultures can be separated quantitatively from the bacterial proteins and this separation may be shown both chemically and by negative specific antibody production in rabbits. The Russian biochemists thus agree with most American investigators that the size and complexity of the bacteriophage unit is less than that of the average protein molecule. The Russian chemists state further that normal bacterial cells can be hyperoxidized by the use of peroxidase plus hydrogen dioxide, one of the oxidation products (or peroxidase derivatives) being an artificial specific bacteriophage. They found this oxidation product transmissible to new bacterial cultures, where it multiplies (or is multiplied) and produces "lysis" in a manner apparently identical with that of the corresponding natural bacteriophage. Like natural bacteriophage, the artificial oxidation product does not multiply (or is not multiplied) in the presence of dead bacteria.

While this research need not be accepted until it is adequately confirmed by other investigators, it is nevertheless in accord with other recent studies of bacteriophage-bacterial respiration. Walthard [2] of the pathologic institute at the University of Bern, for example, reports that the addition of specific bacteriophage to a culture of B. coli is followed by an initial acceleration of oxygen consumption, as much as ten times the normal oxygen being consumed during the first two hours. This hyperoxidation is eventually succeeded by complete respiratory failure. While Dr. Walthard does not theorize as to the probable nature of the specific respiratory hormone responsible for this action, his paper strongly hints that such an abnormal hormonal factor is his conception of "bacteriophage."

1. Jermoljewa, Z. W.; Bujanowskaja, I. S., and Severin, W. A.: Ztschr. f. Immunitätsforsch. **73**: 360 (Jan.) 1932.

2. Walthard, B.: Ztschr. f. Hyg. u. Infectionskr. **113**: 160 (Nov.) 1931.

BLOOD CLOTTING AND HEMORRHAGE

Though the observation was made 150 years ago, it is perhaps not generally realized that blood clots much more rapidly than usual after a severe sudden hemorrhage. Cohnheim noted, in fact, that during the course of extensive bloodletting in animals the last sample of blood coagulated almost instantaneously. This phenomenon has been investigated rather extensively and rests on well confirmed observations.[1] The purposeful result of such a mechanism is apparent; it illustrates anew the existence of natural forces to counteract the effects of injury and disease. The ancient practice of bloodletting in cases of hemorrhage, paradoxical as it may seem, has perhaps a sufficient basis to account for its long continued use. The ability of the body to recover from extensive blood losses is great; the stopping of the leak by a clot, promoted by additional loss of blood, may in some cases be more important than replacing the loss.

Of more immediate interest is the fact that a recent writer [2] has called attention to this old practice and recommends an improved technic, first described by Dr. William L. Detmold in 1863. The efficacy of phlebotomy in lowering blood pressure and promoting coagulation is emphasized, but the same result is achieved without any further loss of blood. Tourniquets are placed round the proximal end of each extremity tightly enough to prevent venous return without occluding the artery. In this way blood is trapped and

1. Gray, H., and Lunt, L. K.: Factors Affecting the Coagulation Time of the Blood: V. The Effects of Hemorrhage Before and After Exclusion of Abdominal Circulation, Adrenals and Intestines, Am. J. Physiol. **34**: 332, 1914.

2. Baldwin, J. F.: The Detmold Method of Controlling Inoperable Hemorrhage, a Forgotten, but Occasionally Invaluable, Procedure, Am. J. Surg. **17**: 279 (Aug.) 1932.

removed from the circulation only as long as is necessary and is then returned to the vital centers, where presumably it will remain, since the leak in the meantime has been sealed. Such a procedure is recommended more particularly for sudden and inoperable hemorrhage and may be of great value in certain cases.

There are certain other surgical conditions in which uncontrollable hemorrhage presents a less urgent but just as serious problem. The bleeding that occurs so often during and after operation in jaundiced patients represents an important group. Linton [3] has shown that there is no defect in the amount of blood fibrin in these cases, but evidence is not available as to just where the fault lies. What is it after severe hemorrhage that makes the blood clot faster? The knowledge might be applied to promote coagulation in jaundiced patients, in whom it is so often delayed. Various experiments have been reported,[4] it is true, and various suggestions have been made, but the real explanation will probably await further general investigations of the phenomenon of blood coagulation.

Current Comment

"LIFE BEGINS"

The most recent atrocity perpetrated by that form of art called the motion picture business is a picture called "Life Begins," now being displayed in various sections of the country according to the whims of the censorship boards. The action takes place for the most part in a maternity hospital, and particularly in a ward devoted wholly to difficult cases. The strange notion that it is the custom in maternity hospitals to put all the difficult cases in one large ward is of course without foundation in fact. The picture is full of action; in fact, there is so much action in the ward that it seems slightly busier than the corner of State and Madison streets, the busiest corner in the world. One of the patients drinks herself into a maudlin state with whisky kept in a hot water bottle and shortly thereafter gives birth to twins. Other patients are constantly hopping in and out of bed to attend to various affairs, most of which are not their business. In this eight bed ward they are attired in handsome kimonos, which they wear in bed. In the midst of the turmoil a psychopathic patient from somewhere upstairs wanders into the ward and helps out the excitement by asking for her imaginary baby. Then she walks into the nursery and removes a baby, which she brings back into the ward, causing the mother of this infant to stage something resembling a riot. The chief action centers about a decision of the physicians in the case of a woman, under a twenty-year sentence for shooting some ward heeler, to save the life of the baby rather than that of the mother, because the mother would have to spend the next twenty years in jail. This they do against the wish of the woman's husband. The performance was viewed largely by an audience of women and young girls, the young girls being most of the time in a state of hysterical laughter and the older women flooding the place with tears. It has been repeatedly urged in these columns that the movies have not yet grown up. Apparently now they have grown up but become insane.

THE URGE TO EXCESS

Advertising of an earlier day was planned primarily to acquaint the public with the fact that certain commodities which it desired to purchase could be had from certain purveyors of such commodities at certain prices. The appeal to the purchaser was based largely on the quality of the goods, the convenience of purchase and the price. Much modern advertising, however, is largely planned to create new desires, in many instances for luxuries; to establish fears relative to the possibility of disease, as in the case of certain widely advertised antiseptics and even toilet tissues; and, in some instances, even to urge excess in cases in which excess may be harmful and actually opposed to good health and hygiene. Conspicuous examples of the last mentioned type of advertising are the claims made in recent advertisements of Chase and Sanborn's Coffee, and the statements used in the promotion of various types of laxatives. A Chase and Sanborn advertisement recently circulated by Standard Brands, Incorporated, which incidentally is also responsible for false and extravagant claims made for Fleischmann's Yeast, urges every one to drink five cups of coffee a day, as representing the coffee tolerance of the average man or woman. Among the falsehoods appearing in this advertisement are the following: first, that new scientific findings have done away with that ancient superstition about too much coffee; second, that it is the rancid oil in stale coffee that is harmful; third, that five cups a day of fresh coffee is not too much; fourth, that this coffee is a natural, healthful aid to digestion. If there is any evidence to support any one of these claims, it is not available in modern scientific medical literature. Such advertising is a reproach to the manufacturer and to the advertising agency that perpetrates it. There is actually no certain evidence that the dating of coffee is anything more than a pseudoscientific means of promoting the use of this special brand. Obviously the purpose of the advertising is to discredit all competitive brands of coffee. In the advertising claims made for various types of laxatives, the user is told that he may do whatever he pleases on the night before, stay up as late as he pleases, drink almost anything that may be handed to him, and that the use of the laxative will then insure for the next day plenty of energy, vitality and health. The claim is false as well as exaggerated and is somewhat reminiscent of those days in ancient Greece when the banqueteers, after indulging copiously in food and drink, used to pass the finger down the throat and empty the stomach so that the pleasures of eating and drinking might be repeated the same evening. Indeed, there would seem to be considerable likelihood that the Greek technic is superior to the plan of the American advertiser who would rush

3. Linton, R. R.: The Relation of the Blood Fibrin to the Hemorrhagic Diathesis of Obstructive Jaundice, Ann. Surg. **96**: 394 (Sept.) 1932.

4. Drinker, K. R., and Drinker, C. K.: Factors Affecting the Coagulation Time of Blood: VI. The Effect of Rapid Progressive Hemorrhage upon the Factors of Coagulation, Am. J. Physiol. **36**: 305, 1915.

the excess food and liquor through the body in order to relieve the partaker of his overindulgence. Such advertising is vicious and harmful in every sense of the word and must inevitably react unfavorably against those who are responsible for it.

CHIROPRACTIC PROPOSALS REJECTED

In THE JOURNAL, November 5, attention was called to the fact that the voters in two states, Massachusetts and Arizona, would decide at the election whether or not they cared to grant the chiropractors the right to practice medicine, either wholly or with certain limitations. The state of Massachusetts was asked to establish a board permitting limited practice; in Arizona, where such practice was already permitted, it was hoped by the chiropractors that they might be able to sign death certificates, prescribe narcotic drugs and alcohol, and engage in other practices for which a chiropractic education would not qualify them. In both states the people rejected the requests of the chiropractors. The public is beginning to learn that there should be a minimum educational standard for all who propose to heal the sick. Of all the systems of healing now being offered to the American people, chiropractic is, no doubt, least qualified. The mental healers appeal openly to the power of suggestion. The osteopaths have something resembling a formal education, including some knowledge of anatomy and physiology, although the essential basis of their system may be unestablished. Chiropractic is founded on a fallacy, its practitioners are without fundamental education, and they do more harm than good.

Medical Economics

NEW FORMS OF MEDICAL PRACTICE

7. Los Angeles Record

Medical service thrown in with your daily paper was the idea of the Los Angeles *Record*. The scheme was described in a first page spread in the issue of Nov. 5, 1931:

IF SUDDEN illness should strike your home at 2 o'clock in the morning, what would you do?

If YOU were hurt in an accident, where would you be taken?

Everyone has experienced, at some time, the agony of trying to locate a doctor—quick—in an emergency.

Everyone sooner or later learns how bitterly long it takes for the ambulance to arrive.

What would it be worth to YOU to know that at any instant—any hour of the day or night—every day of the year—YOU can summon medical aid instantly by calling a certain telephone number?

And when the emergency is past, when the time comes to pay the bill, you know definitely in advance what it will be. You know, too, that it will be considerably less than standard medical fees charged in individual practice—or that there will be no doctor bill at all!

You can have this feeling of safety as to your medical care—and as to your medical expenses.

As soon as you become a member of The Record Health Service League.

The Record presents herewith a few of the benefits enjoyed by Health Service League Members, and explains how YOU may avail yourself and your family of this complete medical service at low cost.

WHAT MEMBERS GET

Through an arrangement with the largest and most successful medical service organization in Southern California, The Record now offers to its subscribers—old and new—medical service in every need, either at reduced rates or for $1.35 per month, paid regularly while you are in good health.

Your subscription to The Record for one year—plus $1 registration fee—is the sole requirement for membership in The Record Health Service League.

Your membership protects yourself and family, too, against high medical costs.

Day and night, 365 days a year, the service of the Pacific Life Extension and Hospital Service System awaits your call.

Physicians and surgeons ready to help you—in accident or illness.

A large, centrally located modern hospital and clinics, emergency hospitals in other centers, ambulances and all hospital facilities are instantly ready to protect you in any emergency.

WHAT PATIENTS SAY

The Pacific Life Extension and Hospital Service System is the outstanding medical service organization in Southern California.

For several years it has served many thousands of persons and now provides for the medical and surgical needs of more than 3000 industrial land commercial establishments.

Here is what W. G. C., one of the thousands served by the Pacific Life Extension system, says in a letter to that organization as to care received after a severe automobile accident:

"I think it only right and fair to let you know how pleased I was with the service, treatment and many courtesies I received at the hands of the Golden State Hospital staff after my recent automobile accident.

"No trouble or expenses was spared in diagnosing my injuries and the medical attention and treatment I received was equal to that obtainable at any price or in any hospital."

The original of W. G. C.'s letter, and many others of similar nature, are on file at the offices of the Pacific Life Extension and Hospital Service System, 2nd floor, 607 South Hill street, and may be seen by any Record reader.

The reader was advised to "cut the high cost of illness and accidents by clipping the application accompanying this article."

The application to be clipped and signed further described the character of the service:

I hereby subscribe for The Los Angeles Record, for one year, to be delivered by carrier at my home, and agree to pay your carrier 45 cents at the end of each month.

For an additional payment of $1 in advance, you agree to register me with the Pacific Life Extension and Hospital Service System, Inc., Ltd., entitling me to either one of the following services provided by that System:

SERVICE NO. 1

Medical, surgical and hospital services, for myself and all members of my family, at the reduced schedule of rates as provided by The Record Health Service League and the Pacific Life Extension and Hospital Service System; or

SERVICE NO. 2

Medical, surgical and hospital service provided in the agreement of the Pacific Life Extension and Hospital Service System, Inc., Ltd., for myself personally, without charge, as long as I pay to the System $1.35 per month, the reduced rate arranged for me by The Los Angeles Record.

It is understood and agreed that my membership in The Record Health Service League, and eligibility for service at the rates quoted under either of the above plans, shall continue only as long as I am a subscriber to The Record.

I select Service No. .....

The "reduced schedule of rates" provided for under "Service No. 1 or Service No. 2," is as follows:

Ordinary office consultation (first)	$ 1.50
Office Examination (first) including brief history & urinalysis	2.50
Subsequent office calls	1.25
House Calls (Plus $.35 per mile over three and under ten miles)	1.75
Night Calls received after 8:00 PM and before 11:00 PM (Plus mileage over three and under ten miles)	3.00
Calls received after 11:00 PM and before 6:00 PM (Plus mileage as above)	4.00
Special physical therapy and electrical treatments (10% reduction for course of ten treatments. 15% reduction for more than ten treatments.)	1.75
Physical examination, including pelvis and urinalysis & report	3.75
SURGICAL	
First surgical treatment (abrasions, contusions and lacerations not requiring more than three sutures)	2.50
Incision of large abscesses or suturing of large or multiple lacerations requiring general anesthesia (General anesthesia five dollars extra)	7.50—12.50
Incisions of abscesses not requiring anesthesia (Fifty cents additional will be allowed for anesthesia)	2.50
Subsequent office visits (Including supplies)	1.50
Herniotomy (Single)	40.00
Subsequent hospital visits	1.75
Herniotomy (Double)	60.00
Appendectomy and other laparotomies	75.00
Subsequent hospital visits	1.75
Curettage	25.00
Subsequent hospital visits	1.75
Hemorrhoids—Incision under local anesthesia	7.50
Hemorrhoids—Excision (depending upon extent of operation)	20.00—35.00
Fistula—Same as hemorrhoids.	
OBSTETRICS	
First Examination, measurements and urinalysis	5.00
Subsequent prenatal office visits including urinalysis	1.50
Delivery (Normal)	25.00
Low forceps	10.00 extra
Immediate repair perineum (first degree laceration) extra	10.00
Subsequent visits at hospital or house rates.	

FRACTURES & DISLOCATIONS

Application of plaster casts	$ 5.00
Clavicle (Fracture & displacement) reduction & first dressing	15.00
Reduction of fractures of lower end of radius and ulna (except where only the styloid of the ulna is involved)	$12.50 one bone— 25.00 both
Fracture of tibia and fibula	$12.50 one bone— 25.00 both
Fracture of humerus	40.00
Fracture of femur	40.00
Fracture of metacarpals	7.50
Fracture of metatarsals	7.50
Fracture of nasal bones	10.00
Fracture of patella	20.00
Fracture of phalanges (two or more)	10.00
Fracture of phalanx	5.00
Potts fracture (including cast)	30.00
Fracture of ribs	6.00
Incomplete fractures and fractures not requiring reduction of the extremity below the knee or elbow (requiring simple splint)	One-half regular fee.
Compound fractures 50% additional	

EYE, EAR, NOSE & THROAT

Removal of foreign bodies in the eye	
Superficial	2.00
Embedded in cornea	3.00
Infective conjunctivities (first examination & treatment)	2.00
Subsequent office visits	1.25
Tonsillectomy	25.00
Subsequent treatments according to fee schedule classification. Local or general anesthesia, $5.00 extra.	
Ears: All ear treatments at office rates except for extreme specialized services.	

X-RAYS

Plates of head, neck, skull, chest, abdomen and back	$ 6.50
(Two Views)	10.00
Flat plate of extremities	3.75

HOSPITAL

Ward Rates (Maximum 6 beds in ward) per day	$ 3.50
Semi-Private Rooms per day	4.25
Private Rooms per day	5.50
(Hospital accommodations include bed, board & general nursing)	
Use of Surgery—Major	$10.00 to $12.50
Use of Surgery—Minor	5.00 to 7.50

LABORATORY

Leucocyte count	$2.00	$3.00
Differential leucocyte count	2.00	
Red blood count	2.00	$5.00
Hemoglobin determination	2.00	$3.00
Blood smears for blood parasites, as malarial plasmodia		$ 2.00
Blood group tests		5.00
Blood chemistry (sugar, urea nitrogen, non-protein, nitrogen, creatinin, uric acid CO_2 combining power) Single item		3.00
Wassermann test—blood		3.00
Widal (agglutination) test		2.00
Coagulation & bleeding times		2.00

URINE

Urinalysis (simple routine)	$ 1.00
Urinalysis (complete with report)	1.50
Bacteriologic examination	2.50

STOOLS

Microscopic examination	$ 2.50
Examination for invisible blood	1.00
Bacteriologic examination for typhoid and dysentery groups	7.50

SPUTUM

Microscopic examination for tubercle bacilli	$ 2.00

EXUDATES

Cerebro-spinal fluid examination for syphilis (Wassermann test, cell count, globulin test)	$ 5.00
Microscopic examination of smears as for gonococci and Vincents angina	1.00
Von Pirquet tuberculin test	2.50

Each member received a "Personal Identification Card" which read as follows:

This is to certify that the bearer, whose name is signed hereto, is a member of The Los Angeles Record Health Service League, and as such is entitled to the benefits of the special rates for medical, surgical and hospital services by physicians and surgeons and other treatment agencies provided by The Pacific Life Extension and Hospital Service System, for bearer and family.

It is understood that in consideration of the special arrangement, the bearer is to pay cash for services or comply with the credit requirements of the respective systems.

It is further understood that the bearer's membership in The Record Health Service League, with accompanying benefits, is contingent upon his remaining a subscriber to The Los Angeles Record for one year from this date.

No..... Date.....193..

Member's Signature .....

Although one of the display advertisements of the service stated that the medical care was given either at home or at the "offices of more than 200 designated leading physicians and surgeons," the "Los Angeles and Metropolitan Directory of Designated and Approved Physicians and Surgeons and Other Agencies of Service of the Pacific Life Extension and Hospital Service System, Inc., Ltd., corrected to November 1, 1931, Subject to change" listed only twenty-three individual physicians and the staff of one hospital.

Of these, ten are members of the Los Angeles County Medical Association, the California Medical Association and the American Medical Association, and seven of these are Fellows of the American Medical Association, while thirteen are nonmembers.

This directory is in the form of a pocket folder and follows in full text:

TO THE MEMBER:

This directory of designated and approved physicians, surgeons and other treatment agencies has been compiled for your convenience. Should you be unable to contact the physician in your district when service is desired, *call* the *Golden State Hospital, 417 Towne avenue, TRinity 8231,* where service will be available any time, day or night, or where you will receive information regarding the service desired.

DESIGNATED AND APPROVED PHYSICIANS AND SURGEONS AND HOSPITALS OF THE METROPOLITAN AREA.

AREA OF METROPOLITAN DISTRICT
Golden State Hospital and Clinics,
J. Rollin French, M.D., and Staff.
417 Towne Ave., Los Angeles.
TRinity 8231.
24 hour service.

AVALON BOULEVARD DISTRICT
C. W. Farley, M.D.
614 E. Slauson Ave., Los Angeles.
AXridge 1070.
24-hour service.

AVENUE 20 AND PASADENA AVENUE
R. W. Baker, M.D.
142 N. Avenue 20, Los Angeles.
CApitol 6665.

BEVERLY HILLS
James M. Stoddard, M.D.
9529 Brighton Way.
OXford 1608.
Residence Phone, OX. 4750.

BELVEDERE GARDENS
A. H. Owen, M.D.
4640 Whittier Blvd.
ANgelus 4909.
Residence Phone, CHicago 3085.
J. G. Foster, M.D.
1011 Goodrich Blvd.
ANgelus 8062.
P. V. Starr, M.D.
1011 Goodrich Blvd.
ANgelus 8062.

BURBANK
Karl P. Stadlinger, M.D.
213 N. Olive Ave.
Phone 272-J.
Residence Phone, 272-M.

CULVER CITY
Harry E. Anderson, M.D.
9812 Washington Blvd.
Culver City 4169.
Residence Phone, Culver City 4145.

EAGLE ROCK
C. M. Hensley, M.D.
2169 Colorado Blvd.
ALbany 1184.
Residence Phone, ALbany 1468.
M. M. Null, M.D.
2169 Colorado Blvd.
ALbany 1184.
Residence Phone, ALbany 1206.

GARDENA
W. T. Cain, M.D.
751 W. 165th St.
Phone 3601.

GLENDALE
Norman C. Paine, M.D.
118 W. Wilson Ave.
Phone DOuglas 4707.
Residence Phone, DOuglas 4117.

HOLLYWOOD
Gardner Chapin, M.D.
6252 Santa Monica Blvd.
GRanite 0448.
Residence Phone, GLadstone 2004.
C. G. Stadfield, M.D.
1314 N. Highland Ave.
GLadstone 9401.

HIGHLAND PARK
Samuel K. Jamentz, M.D.
5625 Pasadena Ave.
ALbany 9110.
Residence Phone, GArfield 8301.

INGLEWOOD
J. B. Peterson, M.D.
207 Professional Bldg.
INglewood 1685W.
Residence Phone, 1685-R.

HUNTINGTON PARK
Frank L. Ready, M.D.
4437 Santa Fe Ave.
LAfayette 9060.
24-hour service.

LOS ANGELES
Golden State Hospital and Clinics,
J. Rollin French, M.D., and Staff.
423 Towne Ave.
TRinity 8231.
24-hour service.

LYNWOOD
Hugh R. McMeekin, M.D.
11326½ Long Beach Blvd.
Lynwood 363.
Residence Phone, Lynwood 2312.

MAYWOOD
W. D. Drake, M.D.
5812 Gifford St.
JEfferson 5537.

SOUTH GATE
H. Lloyd Dixon, M.D.
9903 California Ave.
JEfferson 6835.

SOUTH SIDE
C. W. Farley, M.D.
614 E. Slauson Ave.
AXridge 1070.

SOUTHWEST DISTRICT
Robert E. Grogan, M.D.
1706 W. 48th St.
VErmont 9264.
Residence Phone, WYoming 5547.

VERNON
Frank L. Ready, M.D.
4437 Santa Fe Ave.
LAfayette 9060.
24-hour service.

WEST PICO DISTRICT
B. F. McDermott, M.D.
8809 W. Pico Blvd.
CRestview 8600.
Residence Phone, WHitney 0124.

WESTWOOD
James M. Stoddard, M.D.
9429 Brighton Way.
OXford 1608.
Residence Phone, OXford 4750.

Information has not been obtained as to the character of the service given, or the number of members or beneficiaries, or recent developments and detailed workings of the scheme, further than that the *Record* discontinued it after a short period

of advertising but that the service is still being rendered by the Pacific Life Extension and Hospital Service to some subscribers who accepted this agreement.

Several weeks after the Los Angeles *Record* announced its medical, surgical and hospital service plan in which the Golden State Hospital (owned and operated by Dr. J. Rollins French) was mentioned, the Secretary and General Manager of the American Medical Association received a letter from Dr. French in which he stated that he had "made them (the Los Angeles *Record*) remove our name from the remaining issues." Dr. French stated also that when the campaign was first inaugurated by the newspaper he was one of several to agree to give the members (meaning the Los Angeles *Record* subscribers) medical, surgical and hospital attention at compensation rates, provided they paid cash for the services as rendered. Dr. French claims that it was his resistance which prompted the newspaper to abandon the extreme advertising features of the project.

CRITICISMS

It is difficult to discover any merits in this scheme. Possibly the stereotyped claim made for all such schemes may be advanced; viz., that it offers a kind of medical service to some who might otherwise depend on charity.

Its demerits are as many and as glaring as the flamboyant advertising of "200 designated leading physicians and surgeons," which dwindles to 23 when the list appears. Just what medical authority picked these "leaders," the advertising fails to state.

Adequate medical service cannot be delivered for $1.35 a month. If physicians crediting their loss to advertising received through publicity at first do give such a service, professional income, incentive and morale will decline until future progress and resulting service are threatened. Such proposals illustrate the inevitable deterioration that follows commercial competition between contract schemes.

If such a scheme for the distribution of medical services is based on the same premise as many others in which an insurance principle and the interposition of marketing agencies are used, it is difficult to determine how either the medical profession or hospitals will be able to realize an adequate fee for the services rendered. In this particular instance the newspaper, the Pacific Life Extension and Hospital Service System, Inc., hospitals and physicians are to be provided an income at from 45 cents to $1.35 per month (plus $1 for registration fee) for an entire family.

It should be obvious that the rates quoted are utterly inadequate to provide any medical service except the barest first aid for minor afflictions. To provide complete medical services at such rates would mean swift bankruptcy for any honest and conscientious individual or group. It is not known what is meant by the statement "the reduced rate arranged for me by the Los Angeles *Record*."

Although the advertisements of this service lead the reader to believe that medical service is to be provided for all illnesses, nowhere is there a definite statement to that effect—the completeness of the medical service available and the charges for that service, except the monthly stated payments, are merely implied. It seems reasonable to infer that in addition to the monthly rate the patient may be required to bear personally the "reduced rates arranged . . . by the Los Angeles *Record*."

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10 to 10:05 a. m. (central standard time) over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

November 21. **Crossed Eyes.**
November 23. **Thankful?**

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10 to 10:15 over Station WBBM.

The subject for the week is as follows:

November 26. **High Blood Pressure.**

THE MILWAUKEE SESSION

Application Blanks for the Scientific Exhibit

Application blanks for space in the Scientific Exhibit at the Milwaukee Session are now available. The final date for filing applications is Feb. 13, 1933, and assignments of space will be made shortly thereafter. The Committee on Scientific Exhibit requires that all applicants must fill out the regular application form. Any who desire to receive an application blank should address a request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Chiropractic Initiative Act Defeated.—The chiropractic practice act submitted to the voters of Arizona, November 8, on the initiative of a small group of chiropractors, was, according to the latest available report, defeated by a vote of 21,000 to 11,000. The chiropractors of Arizona already have their own examining and licensing board. They sought, through the act just defeated, to procure the removal of all limitations now imposed on the methods of diagnosis and treatment employed by chiropractors. In other words, they sought to be converted by a vote of the people into unlimited practitioners of medicine. The act was designed, too, to deprive the legislature of authority to regulate the practice of chiropractic, and to exempt chiropractors from the operation of any basic science act the legislature might pass.

ARKANSAS

Society News.—At the annual meeting of the Arkansas Tuberculosis Association in Little Rock, October 12, Dr. Jesse D. Riley, State Sanatorium, presented a paper on "Diagnosis of Childhood Tuberculosis."——Dr. Walter E. Sistrunk, Jr., Dallas, addressed the Tri-County Medical Society (Ouachita, Union and Columbia counties) in Camden, October 6, on "Effect of Cervix Infections on the Health of Women."——Included among the speakers before the Third District Medical Society in Augusta, October 7, was Dr. William T. Pride, Memphis, on "Long Labors and Analgesia in Obstetrics."——Dr. James B. McElroy, Memphis, addressed the First Councilor District Medical Society in Blytheville, October 20, on "Basic Principles of Infant Feeding"; the Mississippi County Medical Society was host at this meeting.——A symposium on pulmonary tuberculosis was conducted before the Washington County Medical Society, October 4; the speakers were Drs. Lewis J. Moorman, Oklahoma City, and Jesse D. Riley, State Sanatorium.

COLORADO

Dr. Levy Honored.—As a special tribute, the Clinical and Pathological Society, Denver, elected Dr. Robert Levy president for the third time on the fortieth anniversary of its organization, October 11. He was the first president of the society and was again president in 1922, the thirtieth anniversary of the society.

DISTRICT OF COLUMBIA

Society of Bacteriologists.—The Smith-Reed-Russell Society was recently organized at George Washington University School of Medicine, Washington, in honor of three former bacteriologists at the school: Drs. Theobald Smith, now of Princeton, N. J., Frederick F. Russell, now of New York, and Walter Reed. The students of the upper three classes whose scholastic average is 86 or above are eligible for membership. The society is sponsoring a series of lectures during the present academic year, the first of which was given by Robert W. Hegner, Ph.D., professor and head of the department of medical zoology, Johns Hopkins University School of Hygiene and Public Health. Other speakers in subsequent lectures will include Edwin O. Jordan, Ph.D., Chicago; Dr. William H. Howell, Baltimore; Dr. Stanhope Bayne-Jones, Rochester, N. Y.; Maurice C. Hall, D.V.M.; Dr. James W. Jobling, New York, and Dr. Warren T. Vaughan, Richmond, Va. The lectures are given monthly to the faculty and student body.

ILLINOIS

Township Solves Quarantine Problem.—Chemung township, center of a milk-producing area in McHenry County, has recently equipped a house as an isolation hospital, Illinois *Health Messenger* reports. The Red Cross bought the house, and township funds were used to remodel it, providing accommodations for thirteen persons, including an attendant for each patient. Dr. Jesse G. Maxon, Harvard, secretary of McHenry County Medical Society, reported that 200 cases of contagious diseases have been cared for since the building was opened. No cross infections or secondary cases of any disease have occurred. Before the isolation home was established, one dairy farm was quarantined sixteen weeks because of scarlet fever. When there are no patients, the home is locked up to avoid expense.

Chicago

Belfield Lecture.—The fourth annual William T. Belfield Lecture was delivered, October 26, before a joint meeting of the Chicago Medical and Urological societies, by Dr. Solomon Strouse, president of the Chicago Society of Internal Medicine. The title of the address was "Changing Concepts in the Dietary Treatment of Renal Disease."

Study of Children with Infantile Spastic Paralysis.—The department of neuropsychiatry of the Research and Educational Hospitals, University of Illinois, has set aside a few beds for the study of children with infantile spastic paralysis. Only severely affected patients, completely unable to walk or stand, are desired. The hospital receives only patients unable to pay for medical services. Physicians or institutions having such patients who desire to take advantage of this offer are requested to communicate with Dr. H. Douglas Singer.

Personal.—Dr. Patrick J. H. Farrell has been decorated by the President with the Silver Star Medal for gallantry in action in the Spanish-American and World wars.——Frank R. Lillie, Ph.D., has been appointed vice chairman of the faculty of the School of Medicine of the Division of Biological Sciences, University of Chicago.——Dr. G. Henry Mundt was elected president of the Association of New York Central Lines Surgeons at the annual meeting in Buffalo, October 14. The next meeting will be held in Chicago in June, 1933.——Dr. Samuel S. Graves, medical director, Industrial Commission of Illinois, was elected chairman of the medical committee of the International Association of Industrial Accident Boards, September 26, at Columbus, Ohio.

Death of Miss Jane Neil.—Miss Jane Neil, internationally known as an educator and especially known to the physicians of the country for her work in the education and rehabilitation of crippled children, died at her home in Chicago, Oct. 29, 1932. Miss Neil at the time of her death was assistant superintendent of schools in charge of handicapped children in Chicago, chairman of the Section on Crippled Children of the White House Conference, honorary vice president of the International Society for Crippled Children, a director of the Chicago Heart Association, and active in many other movements for the welfare of the handicapped. For fourteen years Miss Neil was principal of the Spalding School of Chicago, whose work for crippled children was developed under her guidance. This has been known as the foremost school of its kind in the world and is visited yearly by educational and medical authorities from every country. Her advice as a consultant was sought after by those in charge of similar developments in all parts of the United States.

KANSAS

Personal.—Dr. Fred P. Helm, formerly of Miami, Okla., has been appointed health officer of Topeka, succeeding Dr. Aurel Goodwin, resigned.——Dr. Erastus S. Edgerton, Wichita, won first prize, the president's trophy, in the fifth annual golf tournament of the Sedgwick County Medical Society at Crestview Country Club recently.

Society News.—The Wyandotte County Medical Society was addressed, November 1, by Earl H. Westenhaver, D.D.S., Kansas City, and Dr. Paul M. Krall, Kansas City, on "Foci of Infection." The society was addressed, November 15, by Drs. Elam A. Reeves, Kansas City, on "Study of 1,000 Consecutive Obstetrical Cases in Private Practice," and Hugh Wilkinson, Kansas City, "Rehabilitation."——Speakers before the Sedgwick County Medical Society, Wichita, October 18, were Drs. Arthur S. Risser, Blackwell, Okla., on "Relationship of the General Practitioner and the Specialist," and Harold W. Palmer, Wichita, "Hypothyroid States." Dr. Fred J. McEwen discussed "Coronary Diseases" before the society, November 15, and Dr. Edwin H. Terrill presented a report of a suprasellar cyst.

MARYLAND

Society News.—Speakers before a recent meeting of the Howard County Medical Society were Drs. Andrew C. Gillis on "Examination of the Insane"; Norman B. Cole, "Recent Developments in the Treatment of Hypertension," and Charles W. Maxson, Baltimore, "Injection Treatment of Varicose Veins."

New Buildings at Johns Hopkins.—The Henry M. Hurd Memorial Building, the Osler Medical Clinic and the Halsted Surgical Clinic, representing a direct outlay of nearly $2,000,000 in addition to an endowment of more than $3,000,000, were dedicated at Johns Hopkins Hospital, Baltimore, October 28. An anonymous donor provided the endowment. Joseph S. Ames, LL.D., president, Johns Hopkins University, presided at the dedication. Dr. John M. T. Finney, professor of clinical surgery, gave the Halsted Surgical Clinic dedicatory address, and Dr. William S. Thayer, professor emeritus of medicine, that for the medical clinic. The exercises were held in the Hurd Memorial Building, a semisubterranean auditorium seating 400 and equipped for illustrated medical and surgical lectures. The building, named in honor of the late Dr. Hurd, first superintendent of the hospital, was made possible by a gift from the late George K. McGaw, a trustee, accompanied by a $35,000 endowment fund. Mr. Henry D. Harlan, president of the board of trustees and sole surviving member of the original board, in a eulogy of Dr. Hurd pointed out that he was also the first professor of psychiatry, serving from 1889 to 1911. Dr. Winford H. Smith, present director, spoke on the influence of Dr. Hurd on modern hospital administration, and Dr. William Rush Dunton, Jr., instructor in psychiatry, presented a bas-relief of Dr. Hurd on behalf of one hundred former colleagues and students. The building, housing the two clinics, was completed at Johns Hopkins Hospital last year (THE JOURNAL, Dec. 12, 1931, p. 1805) at a cost of $1,740,000, of which $500,000 was provided by the General Education Board. The clinics are memorials to the late Dr. William S. Halsted, first professor of surgery, and the late Sir William Osler, first professor of medicine, at the Johns Hopkins University School of Medicine.

MASSACHUSETTS

Personal.—Dr. Carroll H. Keene, Chatham, has been appointed district medical examiner, succeeding the late Dr. Harrie D. Handy, Harwich.——Dr. Henry Baker, Boston, has been appointed assistant professor of medicine, Tufts College Medical School.

Symposium on Arthritis.—The Boston Orthopedic Club began a symposium on arthritis, November 14. The respective speakers were Drs. Robert B. Osgood, Chester S. Keefer, Boston, Ralph H. Boots, New York, and Walter Bauer, Boston. The second part of the symposium will be a clinic, December 12, illustrating operative and nonoperative orthopedic treatment. On the same evening the symposium will be completed with a discussion by Boston physicians of the following subjects:

General Aspects of Treatment, Dr. George R. Minot.
Prevention of Deformity, Dr. Loring T. Swaim.
Surgical Aspects of Treatment, Dr. Philip D. Wilson.
Prevention and Community Organization, Dr. Frank R. Ober.

Chiropractic Initiative Act Defeated.—The chiropractic practice act, submitted to the voters of Massachusetts at the recent election on the initiative of the chiropractors of the state, was, according to the latest available report, defeated by 140,000 votes. A chiropractor who desires to practice in Massachusetts now must conform to the standard of fitness imposed on all other practitioners of the healing art. The act just defeated proposed to establish an independent board of chiropractic examiners, authorized to license chiropractors on the basis of the usual inferior qualifications required of such practitioners.

Society News.—A joint meeting of the Greater Boston Medical Society and Beth Israel Hospital, October 18, was addressed, among others, by Drs. Joseph E. F. Riseman on "Clinical Effect of Insulin Hypoglycemia on the Circulation" and Henry S. Finkel, "Present Status of Female Sex Hormone Therapy."——Speakers before the Boston Society of Psychiatry and Neurology, October 20, were Drs. Henry C. Solomon and Samuel H. Epstein, on "Differential Therapeutic Effects of Arsphenamine and Tryparsamide"; Hiram Houston Merritt, Jr., and Merrill Moore, "Tumors of the Brain Associated with Marked Pleocytosis in the Cerebrospinal Fluid," and Henry R. Viets, "Hemangioma of the Retina and Cerebellum with a Note on Lindau's Syndrome."——Dr. Samuel J. Kopetzky, New York, will lecture before the William Harvey Society, December 9, on otitic meningitis.

MICHIGAN

Anniversary Celebration. — The Michigan Tuberculosis Association observed its twenty-fifth anniversary at a luncheon, November 7, in Detroit, which also opened the annual meeting of the society. Included among the speakers at the luncheon were Dr. Charles J. Hatfield, Philadelphia, Dr. Iago Galdston, New York, and Ward V. Evans, Ph.D., Evanston, Ill.

Graduate Conference. — The Michigan State Medical Society conducted a graduate conference in Cadillac, November 10. On the scientific program were the following physicians:

Harrison S. Collisi, Grand Rapids, Management of Labor; Contraceptive Principles.
William J. Butler, Grand Rapids, Pyelitis; Intravenous Urography.
Thomas D. Gordon, Grand Rapids, Birth Injuries; Infant Feeding.
Burton R. Corbus, Grand Rapids, Treatment of Pneumonia; Organizational Problems.
Frederick C. Warnshuis, Grand Rapids, Head Injuries; Organizational Activities.

State Association of Radiologists.—The Michigan Association of Radiologists was recently organized in Kalamazoo with Dr. Augustus W. Crane, Kalamazoo, as president and Dr. Samuel W. Donaldson, Ann Arbor, secretary. The objectives of the society are to cooperate with the Council on Medical Education and Hospitals, to discourage exploitation of radiologists by hospitals and groups; to curb activities of lay and unqualified practitioners and to encourage qualified practitioners of radiology; to plan an educational program to acquaint physicians with advances in this field; to develop a basis for x-ray consultation, and to promote greater cooperation between the clinician and the radiologist. Three meetings a year are planned.

NEVADA

State Society Protests Veterans' Hospitalization Plan. —The Nevada State Medical Association at its annual session adopted a resolution protesting against the present manner of aid rendered by the Veterans' Administration and recommending a plan by which veterans could be hospitalized in their own communities.

NEW MEXICO

Labeling of Dairy Products.—The state board of public welfare promulgated, October 17, a regulation ordering that any label, wrapping or other descriptive material sold with or attached to any dairy product must accurately and honestly describe the nature of the product. Bottle caps may not be used bearing the descriptions grade A, B, C or D except when a milk ordinance approved by the state bureau of public health is in effect and only under the conditions laid down by such ordinance.

NEW YORK

Hospital News.—Dr. Alexander John McRae, Miami, Fla., has been appointed superintendent of the new Nassau County Hospital at Meadowbrook, which it is expected will be completed about September, 1933.

Personal.—Wilder D. Bancroft, Ph.D., professor of physical chemistry, Cornell University, Ithaca, will retire, Jan. 1, 1933, as editor of the *Journal of Physical Chemistry*.——James A. Kennedy, Ph.D., has been appointed director of the division of diagnostic laboratories at the University of Rochester School of Medicine and Dentistry.

New York City

Second Harvey Lecture.—Louis O. Kunkel, Ph.D., head of the division of plant pathology, Rockefeller Institute, Princeton, N. J., gave the second lecture of the Harvey Society at the New York Academy of Medicine, November 17, on "Similarities Between Diseases of the Vegetable Kingdom and Those of Man and Animals."

Personal. — Dr. Alonzo DeG. Smith has been appointed associate professor of medicine in charge of pediatrics at Howard University School of Medicine, Washington, D. C. ——Dr. James Morley Hitzrot has been appointed professor of surgery and attending surgeon at the New York Polyclinic Medical School and Hospital.

Society News.—Dr. Heinrich F. Wolf gave the second of a series of lectures on physical therapy before the Medical Society of the County of Queens, November 11, on "Hydrotherapy and Thermotherapy." —— Dr. Walter B. Cannon, Boston, delivered the eighty-sixth anniversary discourse of the New York Academy of Medicine, November 3; his subject was "Enemies of Society." —— Dr. Charles Wadsworth Schwartz addressed the New York Roentgen Society, November 21, on "Early Recognition of Intracranial Disease."

NORTH CAROLINA

Personal. — Dr. Tilman C. Britt, Washington, has been appointed health officer of Surry County to succeed Dr. Malcolm T. Foster, Mount Airy, who is on leave of absence to study at Johns Hopkins University.

Radiologic Society Meets.—Drs. Karl Kornblum, Philadelphia, and James J. Clark, Atlanta, were guest speakers at the semiannual meeting of the North Carolina Radiological Society at Asheville, October 25, discussing "Roentgenology as an Aid to Diagnosis" and "Vasograms," respectively. The next meeting will be during the annual session of the North Carolina State Medical Society.

OHIO

Cleveland Health Lectures.—The third annual series of free public health lectures sponsored by the Cleveland Academy of Medicine will begin Sunday, November 27, with addresses on tuberculosis by Drs. Joseph C. Placak, whose subject will be "Winning with Modern Weapons," and Harry L. Rockwood, "The Enemy of Youth." At the second meeting of the series, January 8, the subject will be "Glands," discussed by Drs. Julius M. Rogoff and Oliver P. Kimball. Maternal health is to be the subject of the third session, February 19, when the speakers will be Drs. Richard A. Bolt and Arthur J. Skeel.

Society News.—Dr. Isidor S. Ravdin, Philadelphia will address the Mahoning County Medical Society, Youngstown, November 22, on water metabolism. The society's annual meeting open to the public will be held, December 15, with Dr. Haven Emerson, New York, as the speaker, on "Preventable Diseases and Their Control by Personal and Public Action."——Drs. Gordon L. Erbaugh and Earl M. Smith addressed the Montgomery County Medical Society, Dayton, October 21, on eclampsia and pernicious anemia, respectively. ——Dr. Tracy B. Mallory, Boston, addressed the Summit County Medical Society, Akron, November 1, on "Pathology of Bronchial Asthma and the Asthmatic Paroxysm."——Dr. William Sydney Thayer, Baltimore, addressed the Cleveland Academy of Medicine, November 18, on endocarditis, and Dr. Howard T. Karsner, on pathology of valvular endocarditis. Recent graduate lectures of the academy were given, November 4 and 11, by Dr. Richard Dexter on abscess of lung and bronchiectasis and, November 18, by Dr. Marion A. Blankenhorn, new growths of the lung and bronchi.——The Cleveland Allergy Society was recently organized, with Dr. Milton B. Cohen as president and Dr. Edward L. Sherrer, secretary.

PENNSYLVANIA

Society News.—Dr. Thomas Grier Miller, Philadelphia, addressed the Delaware County Medical Society and the Medical Club of Eastern Delaware County, Chester, November 10, on diagnosis and treatment of gastric and duodenal ulcers.—— Drs. Philip D. Wilson and Francis C. Hall, Boston, addressed the Erie County Medical Society, Erie, November 1, on medical and surgical treatment of chronic arthritis.——Dr. Joseph C. Doane, Philadelphia, addressed the Schuylkill County Medical Society, November 15, on "Sympatheticotonia and Its Relation to Peripheral and Visceral Diseases."——At the session of the Pennsylvania State Nurses' Association in Philadelphia the Pennsylvania League for Nursing Education and the Pennsylvania Organization for Public Health Nursing, October 25-27, a recommendation was approved for cooperation with hospitals and nursing schools to reduce the number of nurses and increase the training standards.

Philadelphia

The Mütter Lecture.—Dr. H. Gideon Wells, Chicago, will deliver the Mütter Lecture of the Philadelphia College of Physicians, December 7; his subject, "A Summarization of the Advance in Our Knowledge of Some Features of Cancer."

Cardiology Night. — The Philadelphia County Medical Society, in cooperation with the Philadelphia Heart Association, presented a program, November 9, setting forth accomplishments in prevention and treatment of heart disease during the past ten years. The speakers were Drs. William D. Stroud, Hugo Roesler, George C. Griffith, Henry K. Mohler and Charles C. Wolferth.

Joint Meeting of Otolaryngologists. — The sections of otolaryngology of the College of Physicians of Philadelphia and of the New York Academy of Medicine held a joint meeting in Philadelphia, November 16. Papers were presented by Drs. Chevalier Jackson, "Postoperative Pulmonary Complications: Are They Preventable?"; Jacob Parsons Schaeffer, "Atresia of the Choanae: Its Incidence, Types and Cause";

George M. Coates, "Recent Developments as to Otosclerosis, Cholesteatoma and Static Labyrinth Function," and Oscar V. Batson, "Anatomy of the Temporal Bone."

Ex-Residents' Annual Dinner.—The Association of Resident and Ex-Resident Physicians of the Philadelphia General Hospital will hold its forty-sixth annual dinner, December 6, at the Philadelphia Country Club. Dr. Herman B. Allyn will be the guest of honor. Other guests will be Drs. J. Norman Henry, director of health of Philadelphia; George A. Knowles, assistant director; William G. Turnbull, superintendent of the Philadelphia General Hospital, and Leonard G. Rowntree, director of the Philadelphia Institute for Medical Research. All ex-residents are invited. Dr. George Wilson, 133 South Thirty-Sixth Street, Philadelphia, is secretary.

RHODE ISLAND

Society News.—Dr. Albert H. Miller, Dr. Alexander M. Burgess and Alex M. Burgess, Jr., addressed the Providence Medical Association, November 7, on oxygen therapy.

Hospital News.—Dr. Frederic J. Farnell, chairman, state public welfare commission, made an address on "Social Aspects of Psychiatry" at the State Hospital for Mental Diseases, Howard, October 24.

SOUTH DAKOTA

Society News.—Dr. John R. Westaby, Madison, addressed the Huron District Medical Society, October 13, on "Morphology of the Cancer Cell."

Health Officers' Meeting.—The South Dakota Health Officers Association held its annual meeting in Huron, October 4, and reelected Dr. Edwin T. Ramsey, Clark, president for the fourth time. Dr. James B. Vaughn, Castlewood, was named vice president and Dr. August E. Bostrom, De Smet, reelected secretary. The scientific program included the following speakers:

Dr. Herbert A. Burns, superintendent, Minnesota State Sanatorium, for Consumptives, Ah-gwah-ching, Minn., Prevention of Tuberculosis.
Dr. Charles E. Yates of the U. S. Indian Service, Trachoma Among the Indians of South Dakota.
Dr. Guy E. Burman, Carthage, Pellagra.
Dr. Robert W. Allen, director, bureau of preventable diseases, North Dakota State Department of Health, Botulism in North Dakota.
Dr. John Sutherland, superintendent, Marshall County Board of Health, Britton, Syphilis and Its Prevention.

TEXAS

Personal.—Dr. Arthur P. Black, formerly of El Paso, is now associate professor of pediatrics at Peiping University College of Medicine, Peiping, China.

Society News.—Drs. John Shelton Horsley, Richmond, Va., and Worcester A. Bryan, Nashville, Tenn., addressed the Texas Surgical Society at its semiannual meeting in Galveston, October 24-25, on "Gastric and Duodenal Surgery" and "Correlations of Symptoms, Pathology and Postoperative Results in Cholecystitis," respectively.——Dr. Charles L. Scudder, Boston, was guest lecturer at the annual clinical meeting of the Texas Orthopedic Club in Dallas, October 7-8, which was devoted to treatment of fractures.——Among other speakers at a meeting of the Northwest Texas District Medical Society in Ranger, in September, were Drs. William G. Phillips, Fort Worth, on "Endocrine Gland Disturbances"; Bailey R. Collins, Wichita Falls, "Diverticulitis of the Colon," and Arthur G. Schoch, Dallas, "Reactions to Arsphenamine: Their Prevention and Control."——The Texas Public Health Association held its annual session in Dallas, November 7-11.

GENERAL

Society News.—Dr. John M. T. Finney, Baltimore, was chosen president-elect of the Interstate Postgraduate Medical Assembly of North America at the annual session in Indianapolis, October 27. Dr. William J. Mayo, Rochester, Minn., became president and St. Louis was tentatively selected as the 1933 convention city.——Delta Omega, honorary public health society, elected the following officers at its annual meeting in Washington, D. C., October 25: President, Dr. Allen W. Freeman, Baltimore; vice president, Ira V. Hiscock, C.P.H., New Haven, Conn., and secretary, Dr. Wilson G. Smillie, Boston.

Uniform Narcotic Drug Act Approved.—The draft of a proposed uniform state act to regulate the manufacture, distribution and use of narcotic drugs was approved by the National Conference of Commissioners on Uniform State Laws, October 8, at its meeting in Washington, and by the American Bar Association, October 12. The National Conference of Commissioners on Uniform State Laws is a quasi-official body, made up of commissioners representing each of the several states, organized for the promotion of uniformity in state legislation. The conference has had legislation with reference to narcotic drugs under consideration for several years.

Impostor Victimizes Hospital.—Flower Hospital, New York, has reported that a man giving the name Abraham Rothgeiser recently appeared at the hospital with letters stating that he was photographing hospitals with the approval of the American Medical Association. He showed numerous photographs of hospitals and was allowed to make a series in Flower Hospital. The report stated that after promising to deliver the pictures within one week, the man received payment for his work and never returned. Attempted communication revealed that the telephone at the address he had given had been disconnected. The American Medical Association has no knowledge of such a person and has not sanctioned any photographer to photograph hospitals.

Saunders Memorial Medal.—Recommendations are now being considered for the Walter Burns Saunders Memorial Medal, which is awarded under the auspices of the American Nurses' Association by W. L. Saunders II, Philadelphia, in memory of his father, Walter Burns Saunders, to any nurse, member of the association, who has made a noteworthy contribution to the cause of nursing. Any one wishing to recommend a nurse should submit her name, address and official position. The recommendation, which should "carry with it a complete statement of the professional background and accomplishments of the individual, together with a history of the achievement for which the award is to be made," should be sent to the American Nurses' Association, 450 Seventh Avenue, New York, before December 31.

National Academy of Sciences.—Subjects of medical interest that were discussed at the annual meeting of the National Academy of Sciences at Ann Arbor, Mich., November 14-16, included the following:

Charles Judson Herrick, Sc.D., Chicago, Functions of the Olfactory Parts of the Cerebral Cortex.
Eugene U. Still, Ph.D., Chicago, A Study of the Metabolism of the Pancreas in Vivo and in Vitro.
Wilder D. Bancroft, Ph.D., Ithaca, N. Y., The Agglomeration Theory of Sleep.
Dr. Arno B. Luckhardt, Chicago, Cardiac, Vasomotor and Respiratory Phenomena Induced by Manipulations of the Gastrohepatic Ligament, Liver, Stomach and Diaphragm.
George L. Clark, Ph.D., and Kenneth E. Corrigan, M.S., Urbana, Ill., The Crystalline Structure of Insulin.
Dr. Carl V. Weller, Ann Arbor, Biological Significance of Protective Mechanisms Inherent in the Myocardium.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Vincent's Hospital, New York, $7,500 by the will of Mary E. Bird.

St. Joseph's Hospital, Fort Wayne, Ind., $12,500 by the will of Annie Klingensmith of Indiana, Pa.

Grant County Hospital, Marion, Ind., $2,500 by the will of J. W. Stephenson.

Montefiore Hospital for Chronic Diseases and Hospital for Joint Diseases, New York, $81,415 each under the will of the late Henry Sterne.

United Hospital, Port Chester; St. Agnes' Hospital, White Plains, and Hospital of the Servants of Relief for Incurable Cancer, Hawthorne, N. Y., $5,000 each under the will of the late George J. Werner.

New York Ophthalmic Hospital, New York Orthopedic Dispensary and Hospital, New York Eye and Ear Infirmary, Babies' Hospital, New York Homeopathic Medical College and Flower Hospital, $5,000 each under the will of the late Edward Guthrie Kennedy.

St. Luke's Hospital, New York, $200,000 by the will of the late Mrs. Cora Smith Kennard.

Western Surgical Association.—The forty-second annual meeting of the Western Surgical Association will be held in Madison, Wis., December 9-10, under the presidency of Dr. Harry P. Ritchie, St. Paul, Minn. Among physicians listed on the program are:

Alfred W. Adson, Rochester, Minn., Surgical Treatment of Osteomyelitis.
John Staige Davis, Baltimore, The Division of Plastic Surgery: Its Needs; Its Organization; Its Field of Usefulness.
Joseph Louis Ransohoff, Cincinnati, Recognition and Treatment of Paralytic Ileus.
Karl A. Meyer, Chicago, Deferred Operation in the Treatment of Periappendicular Abscess.
William T. Coughlin, St. Louis, Hemorrhage After Operations on the Biliary Tract.
Paul B. Magnuson and Onis H. Horrall, Chicago, Surgical Removal of Diseased Cartilage of Monarthritis of the Knee and Hip Without Synovectomy.
Dr. Clarence G. Toland, Los Angeles, Fatal Hemolytic Crisis Following Splenectomy for Splenic Anemia.

The annual banquet will be held at the Lorraine Hotel, Friday evening, December 9.

Changes in Status of Licenses.—The California State Board of Medical Examiners reports the changes in status of the following physicians for the reasons indicated:

Leighton R. Corman, San Diego, license suspended October 19, for one year for aiding and abetting an unlicensed person; namely, a lay woman using a secret cancer paste.
Russell R. Craft, Marysville, license revoked, October 18, based on alleged illegal operation.
Ralph H. Newcomb, Upper Lake, license restored, October 17; placed on probation without alcohol and narcotic privileges.
Eugene J. Rinaldo, Los Angeles, license revoked, October 18, based on alleged fraudulent credentials.
Lee E. Smith, Taft, placed on probation, October 19, for five years without narcotic permit or possession.

The board of medical examiners of Oregon recently reported the following changes:

Chester A. Bump, San Francisco, Oregon license restored, October 26; it had been revoked Sept. 28, 1931.
Homer J. Flinn, formerly of Portland, license revoked, August 3, for drug addiction.
Heinz George August Hummel, Salem, license revoked, September 14, for making false affidavit on his application for license.

FOREIGN

Personal.—Mlle. M. Condat has been appointed professor of therapeutics in the medical faculty at Toulouse; this is said to be the first time a woman has occupied a medical chair in France.

Graduate Course in Poland.—The University of Poznan, Poland, has recently given a three months' graduate course in surgery for foreigners under the direction of Prof. A. Jurasz in the university surgical clinics and will offer the same course in the fall of 1933. It includes theoretical lectures, radiologic demonstrations, surgical technic and practical work in the operating room. Candidates are required to present credentials attesting graduation from medical school and their qualifications. Information will be given by Professor Jurasz, University Surgical Clinics, Szpital P. P., Poznan, Poland.

Chadwick Lectures.—The autumn series of Chadwick Lectures in London include the following:

Sir Humphry Rolleston, The Pioneers and Progress of Preventive Medicine, October 20.
Professor Kielstra, Leiden, Hygiene in the Far East, November 15.
Sir Pendrill C. Varrier-Jones, Employment of Tuberculous Patients, November 15.
Dr. Thomas Carnwath, Public Health Administration, December 1.

In addition to the lectures in London, Prof. S. D. Adshead will give a lecture in Bradford, on developments in the housing problem, November 21, and Dame Anne Louise McIlroy, at Gateshead, on maternal and infant welfare, November 25.

Society News.—The second congress of the International Society of Orthopedic Surgery will be held in London, July 19-22, 1933. Officers of the congress are Prof. Nové-Josserand, Lyons, France, president; Dr. Delchef, Brussels, Belgium, secretary general, and Mr. Harry Platt, Manchester, England, secretary.——A course of five lectures on teaching of preventive medicine in Europe was given in the London School of Hygiene and Tropical Medicine, October 17-21, by Prof. Carl Prausnitz, professor of hygiene in the University of Breslau.——Dr. Otto Kahler, director of the otorhinolaryngology clinic, Freiburg University, gave the annual Semon lecture at the Royal Society of Medicine, London, November 3, on the tonsil problem.——The German Society for Research on the Circulation will hold its sixth annual meeting in Würzburg, March 6-7, 1933. The central subject for discussion will be the circulation and the nervous system. Those who wish to present papers on this subject are requested to notify the chairman, Professor Magnus-Alsleben in Würzburg, not later than January 1.

CORRECTIONS

Dose of Viosterol.—The dose of viosterol given in the abstract entitled "Vitamin Therapy" of Dr. P. D. Crimm's article in THE JOURNAL, November 5, page 1632, was 20 drops four times a day. This was an error and should have been 20 drops once a day.

New Forms of Medical Practice.—Dr. C. F. Eikenbary, Seattle, writes that he requested removal of his name from the literature of the Bridge Clinic of Tacoma (discussed in THE JOURNAL, October 29, p. 1515), first on Nov. 15, 1927, and again on Aug. 13, 1931. The information obtained by our representative was secured in Tacoma, Oct. 13, 1931, two months after the second letter sent by Dr. Eikenbary to Dr. Bridge requesting that his name be removed from the list of staff members. Apparently it is easier to join the staff of corporations practicing medicine than to get off the staff.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 29, 1932.

Report of Cancer Research

The tenth scientific report of the Imperial Cancer Research Fund has just been published.

CHEMOTHERAPY

Dr. R. J. Ludford has investigated the influence of dyestuffs and inorganic colloids on resistance to transplantable tumors. Beneficial results in the treatment of human cancer have been claimed at different times for colloids of copper, iodine, sulphur, selenium, lead and the acid dyestuff isamine blue. Dr. Ludford's experiments failed to show any direct influence on the cancer cell. Large numbers of dyestuffs were injected into tumor-bearing mice without any sign of inhibition of growth. The general results were that when tumors were growing at their maximum rate injections of dyestuffs and colloids in nonlethal doses were without influence on growth. But when the animal was resistant, as indicated by a preliminary growth of the graft followed by regression, dyestuffs and colloids favored growth by their action on the mechanism of resistance. All these substances were found to be actively segregated by the macrophages that surrounded the tumor graft and it was probably on this that their action depended.

Mr. Foulds investigated the effect of injecting trypan blue into rabbits inoculated with tumor emulsions. In controls a characteristic distribution was found of the metastases produced by injecting an emulsion of the Brown-Pearce rabbit tumor into the ear vein. They were frequent in the kidneys (90 per cent), suprarenals (70 per cent) and eye (31 per cent); comparatively rare in the lungs (20 per cent) and liver (18 per cent), and absent in the spleen. But when trypan blue also was injected the spleen was no longer immune but showed well developed tumors (in seventeen out of thirty animals), while the incidence in the liver rose to 82 and in the lungs to 76 per cent. The suggestion is made that the cells of the reticuloendothelial system are responsible for the defensive mechanism and that absorption of the dye by them acts in much the same way as in the macrophages surrounding tumor implants. Thus none of the experiments give any support to the chemotherapy of cancer.

RADIUM THERAPY

Dr. Cramer has made an important study of the mode of action of radium therapy. He first observed the effect of radium on a precancerous skin area. Tar was painted on 120 mice twice weekly and the painting was stopped before any warts appeared. The mice were then divided into two batches, one being irradiated over the painted area and the other serving as a control. Irradiation was performed with 58 mg. of radium element, screened with 18 mm. of silver, for an hour in some cases and half an hour in others. The radium reaction was more intense in the tarred areas than in areas not so treated. But the development of warts and consequent malignancy was delayed or completely checked. These results are considered of practical importance in the treatment of mammary and rectal carcinoma. In the former, Cheatle has shown that the foci of malignant disease are multiple, and Lockhart-Mummery and Dukes have shown that the latter arises from a relatively extensive precancerous area. Hence radiotherapy should extend over a much wider area than the evident malignant growth.

THE MODE OF ACTION OF RADIUM

In a second paper, Dr. Cramer discusses the mode of action of radium. It has been stated that irradiation of a growth has set up extensive metastatic spread and, conversely, that it produces an immunizing effect on growths already present.

But Dr. Cramer's careful experiments negative both these statements. How does irradiation produce local regression? According to some, this is due to radiosensitivity of the neoplastic as compared with the normal cell. Hence all the tumor cells should receive a lethal dose of radiation. Others, while admitting a damaging effect on the tumor cells, hold that the surrounding stroma cells participate in the process of regression, and this view is supported by recent experimental work. Tumors exposed in vivo to a dose of radiation certain to cause regression, and then removed, will grow on inoculation into other animals. Radiation can kill malignant cells, but the dose required is about the same as that necessary for fibroblasts. An irradiated tumor is seen to be surrounded by macrophages and young fibroblasts, which grow in among the tumor cells. Vascular changes—the engorgement, dilatation and diapedesis following radiation—also play a part. Dr. Cramer concludes that regression is a complex effect, depending on action on nonmalignant as well as on malignant tissues, that radiation should be applied so as to produce uniform action on the tumor as a whole, and that dosage should not be so great as to throw out of action the nonmalignant cell elements, which are of fundamental importance in producing regression and subsequent repair.

The Ministry of Health and Poliomyelitis

The Ministry of Health states that since August there has been a slight rise in the incidence of acute poliomyelitis, though the cases have appeared singly and are widely scattered. The ministry has received inquiries as to the wisdom of closing residential schools in which isolated cases have occurred. The ministry is definitely of opinion that the balance of advantage is in favor of not closing a residential school in which poliomyelitis has appeared. If the school is closed, any potential infectiousness of the disease is more widely distributed and passes beyond such means of supervision and control as are furnished in a well equipped residential school conducted on hygienic lines. A large public school of 500 boys has recently been closed because of the occurrence of two cases of poliomyelitis. Criticizing this, the *Lancet* points out that poliomyelitis is mainly spread by carriers or unrecognized infections; also that carriers generally outnumber cases by 100 to 1. Children of preschool age are more susceptible to infantile paralysis and suffer more severely from it than do boys of public school age. Therefore the distribution of 500 potential carriers of the virus of poliomyelitis far and wide among children of the preschool age cannot be described as a safety measure—at least for the community. Moreover, the closure of a school a fortnight after the appearance of the first case, as was done, shows that many boys must have had time to become virus carriers under the close living conditions of school life. Replying to this, the headmaster of the school states that he was by no means indifferent to the interests of the community. In a memorandum sent to all parents, he wrote: "The dispersal of the school may seem to involve some danger to the community. But this will not be so if two conditions are fulfilled: (1) that every boy shall be kept away from intimate conduct with other young people for three weeks; (2) that the local health officer be informed at once of the boy's arrival in his area." In addition, a letter was sent from the school medical officer to the physician of every household concerned.

The Payment of Research by Results

In an address on preventive medicine, at the Royal Institute of Public Health, Sir Ernest Graham-Little (dermatologist and member of parliament), who is well known for his independent attitude in medical politics, said that the greatest triumphs of preventive medicine had been achieved almost uniformly by individual researchers to whom scanty recognition had been given. Individual research should be encouraged and receive rewards commensurate with its importance. In medical as in other human activities, payment by results was more conducive to the end in view than payment in advance. Any influence that deprived the inventor of his just guerdon not only of praise but also of profit was likely to sterilize invention at its source. Recently a determined effort originating with the Medical Research Council had been made to perpetuate what the late Sir Ronald Ross called "the silly custom by which doctors are not supposed to make profit from invention." Sir Ernest criticized the action of the council of the British Medical Association, the Royal Colleges of Physicians and Surgeons, and the Medical Research Council, which endeavored in the last session of parliament to make it illegal for physicians to take out patents for medical inventions. Happily that action was defeated. It had become a burning question whether the nation was getting anything like a return for the money which it spent in subsidizing research. As Ross pertinently said, "The nation pays large sums annually for current researches which may or may not prove useful" but refused to reward individuals who had established, as Ross did, a discovery which had altered large areas of the earth. In the last year the Medical Research Council drew from the exchequer $740,000, but Ross's petition for a modest reward for his work on malaria was never allowed to reach the house of commons.

PARIS

(From Our Regular Correspondent)

Oct. 19, 1932.

International Congress on Rheumatism

Most of the medical activity in recent weeks has been taken up with congresses. Some physicians in this country are beginning to agree with the decision in Germany that too many congresses are being held. Many of the persons one meets at the conventions are those who feel the urge of the *wanderlust*. The congress devoted to rheumatism, organized by the Ligue internationale du rhumatisme, was held in Paris, under the chairmanship of Prof. Fernand Bezançon, immediately following the Congrès français de médecine, over which he likewise presided. There were 400 present, from fourteen different countries. The opening session was held in the Great Hall of the Faculty of Medicine, being honored by the presence of Mr. Justin Godart, minister of public health. The inaugural address of Professor Bezançon was a remarkable presentation of the vast problem of rheumatism. He views it as a disease of the serous membranes—an allergic reaction that may provoke, under the identical form, microbe infections, eliminations of widely diverse toxins, and finally humoral dyscrasias such as are produced by injections of serum and of proteins. This general idea of allergy is inescapable if one wishes to render account of the widely different forms of rheumatism, which range from acute juvenile rheumatism, with lesions of the endocardium, which is frankly of an infectious nature, to the types that are chronic from the start; the articular accidents of numerous infectious diseases, and gouty, thyroidal, parathyroidal or saturnine rheumatism, and the like. Dr. Fortescue Fox of London, president of the Ligue internationale du rhumatisme, demanded that more attention be given the action of heat and cold in rheumatism. Dr. Mathieu Pierre Weill presented statistics to show the great importance that rheumatism has assumed as a plague of society, no less important than tuberculosis and syphilis, from the standpoint of the number of premature deaths and cases of disability. Organizations in various countries expend immense sums for the care of patients with rheumatism, not to expatiate on the millions of days lost from work. In emphasizing the need of special sanatoriums for patients with rheumatism, he cited the example of a French railway company that created such a sanatorium for its personnel, with the result that the amount of sick benefits granted to sufferers from rheumatism has been diminished 40 per cent. The minister of public health stated that he

favored the creation of such sanatoriums at certain of the mineral spring resorts. Three topics had been selected for the program of the congress. The first, "Beginning Symptoms of Chronic Rheumatism," gave rise to seven papers, which had been prepared by Messieurs Maliwa, Austria; Gunzburg, Belgium; Coste and J. Forestier, France; J. Drukker and van Breemen, Netherlands; S. Pisani, Italy; A. Mester, Poland, and Kontchalovsky, Russia.

The second topic, "Relations Between Rheumatism and Tuberculosis," awakened apparently the greatest degree of interest. Papers were presented on this topic by Carl Reitter of Austria, Ory of Belgium; F. Bezançon, P. Weill, Delarue and Oumanssky, France; J. van Breemen, Netherlands; Frugoni and Peserico, Italy; Kontchalovsky, Russia, and Kahlmeter, Sweden. F. Bezançon and Delarue demonstrated that acid-resistant tubercle bacilli could be found in cultures derived from fibrous lesions in certain types of rheumatism. J. van Breemen pointed out the frequency of tuberculous rheumatism in the Netherlands in butchers' boys, and advanced the theory that they had suffered an inoculation with bovine tuberculosis. Kahlmeter endeavored to cultivate tubercle bacilli in the blood by the Löwenstein method, which Löwenstein and Reitter had done in 1930, affirming from 70 to 80 per cent of positive results. These observations were contested by many investigators. Kahlmeter secured only four positive cases in forty cases of polyarthritis and two positive cases in eighteen cases of erythema nodosum. But in three fourths of the cases of acute polyarthritis that he observed he obtained positive tuberculous reactions, either with Wassermann extract or with Besredka extract. Ory admitted that bacillemia is frequently observed in patients with rheumatism but thought that the importance of this fact should not be exaggerated. The bacilli that one finds in rheumatismal lesions have only an attenuated virulence, and if the patients later become tuberculous they present only torpid forms. The theory may be advanced that this is because, conformably to the old French conception of arthritism, they present a greater resistance. Ory concluded that there is no evident connection between rheumatism in general and tuberculosis but that there are unquestionably tuberculous manifestations of a rheumatoid type and that general infections of an entirely different nature may occur. He admits the idea of tuberculous rheumatism without, however, approving of the term. In an unofficial communication, Reinders of Bussum stated that the tuberculous rheumatism of Poncet and Leriche is known only in France. The reason for this, he states, is that the true tuberculous lesions of the lung, with which, for a long time, perfectly harmless lesions or benign tuberculous manifestations that healed spontaneously were confused, are now better known. Further communications by Pic of Lyons and de Grenet of Paris tended to diminish the rôle of tuberculosis in connection with rheumatism.

A third topic, "Rheumatism in Relation to Occupation," was considered in papers by van Breemen of Amsterdam, Denishevsky of Russia, and Karl Broberg and Kahlmeter of Stockholm. Numerous communications on kindred subjects were presented, among which may be mentioned those of Weill and Delarue on the similarity of the histologic aspects of rheumatismal nodes and the lesions of gout; Messieurs Kahlmeter of Stockholm, Forestier of Aix-les-Bains, Ory of Brussels, Landerer of Charlottenburg, Max Hirsch of Berlin, Menuel of London, Edgar Cyriax of Edinburgh and Cheglova of Moscow, on the use of sulphur in suspension in the treatment of rheumatism; Natannsen of Hamburg, on the remarkable effects of injections of a hypertonic solution of invert sugar into the tissues affected with rheumatism; Gunmar Edström of Gothenburg, on the influence of housing and the type of occupation on the evolution of chronic rheumatism, and Munter, on the incidence of rheumatism in Belgium. The next International Congress on Rheumatism will be held at Moscow in May, 1934.

Congress of the French Urologic Society

The thirty-second Congrès de l'Association française d'urologie was held, as is the custom, at the same time as the Congrès de chirurgie, at the Faculté de médecine de Paris. The session was presided over by Dr. Papin, an ordinary practitioner. This circumstance attracted the more attention when two professors of the Faculté de médecine, Gosset and Legueu, took seats on the platform, one on each side of Dr. Papin, in evidence of their support. Papin traced the development of urology, the independence of which—in France at least—is of comparatively recent date, and enumerated the discoveries that have made possible rapid progress. As objectives for the future, he pointed to prevention of urinary lithiasis and prostatic adenoma, reparative surgery of the ureter, and possibly kidney grafts. A single topic was on the program, "Treatment of Malignant Tumors of the Bladder," on which subject André and Grandineau of Nancy emphasized the difficulties connected with diagnosis of pedunculate tumors, which may, under a benign aspect, develop into epitheliomas. Biopsy performed under the control of the cystoscope will often be indispensable. The authors pointed out that the most frequent site of these tumors is the region of the trigon and the ureteral orifices, in which surgery has little practical value. Metastases to the retroperitoneal ganglions are seen in a third of the cases, which makes the prognosis less favorable. Epitheliomas constitute 95 per cent of these malignant tumors. If section of the ureter is necessary, they prefer not to resort to reimplantation but perform a nephrectomy. Total cystectomy is a serious operation, the operative mortality ranging around 50 per cent. In France, intestinal deflection of the urine is not advocated. Physical agents have supplied a number of procedures that are less radical. The speakers discussed at length the researches of Keyes, Neill, Young and Kidd on the use of radon. They stated that complete cures are possible. The use of needles constitutes the most effective procedure; but an inordinate number of needles produces grave accidents of toxemia. Mesothorium, recommended by Legueu, Marsan and Flandin, in the form of intravenous injections, checks hematuria but has only a palliative result. High voltage roentgen therapy gives variable results that cannot be foretold in advance. The results are better when they supplement those of surgery, electrocoagulation or radium. But roentgen therapy has been known to stimulate the development of the tumor.

BERLIN

(From Our Regular Correspondent)

Oct. 17, 1932.

Goiter in Germany

Following reports from diverse regions of the German *reich* of an increased incidence of goiter since the war, the goiter question was thoroughly gone over in 1925 by the federal health council, with the collaboration of experts. The increased incidence of goiter in certain parts of Germany was confirmed and iodine prophylaxis recommended. As a basis for further measures, the assembling of statistics regarding school children was deemed necessary. Such statistics have been collected except in two of the smaller *länder*. Health officers and school physicians examined a large percentage of the total number of school children from 6 to 14 years of age in many regions, but in other places only small cross sections. The figures obtained must be used with caution, because, since the research extended in some instances to only a small number of school children, its uniformity was not assured and considerable play was left to the judgment of the examiners. In spite of such sources of error, however, certain conclusions based on the statistics can be accepted as reliable. For instance, the high incidence of goiter in the mountainous regions of various *länder* was confirmed. In one region of southern Germany, up to 60 per cent of the population gave evidence

of goiter, or a marked predisposition to goiter, before the introduction of iodine prophylaxis. In contradiction to the theory of iodine deficiency was the observation from a district of East Prussia that, in spite of the fact that the drinking water showed an unusually high iodine content, there was a high percentage of goiter. That the incidence among females is much higher than among males was confirmed. From regions with a high incidence (in Bavaria, Württemberg and Baden), it was reported that iodine prophylaxis gave good results. And, in general, the effects of iodine were termed good in every instance, and in some regions were reported to have been extremely favorable. In some sections of Württemberg and Baden, within a few years, the groups of goitrous school children have entirely disappeared, or have been greatly reduced. Similar reports have come from Prussia. However, in order to prevent iodine injuries, such as have occurred in a number of places, it is absolutely necessary that iodine prophylaxis be carried on under the supervision and direction of the physician, and not left, as sometimes has been done, to the judgment of the teachers. If proper precautions are used, iodine prophylaxis may be recognized as a distinct advance. The federal government has suggested to the governments of the *länder* that greater attention be paid to iodine prophylaxis.

Research Work Under Difficulties

The annual session of the Notgemeinschaft der Deutschen Wissenschaft was held recently in Berlin. All German universities and scientific academies sent delegates. The business report for the fiscal year 1931-1932 was presented.

For the past twelve years, the Notgemeinschaft has endeavored to preserve to German science its reputation and to furnish opportunities for training to a competent body of young scientists. Unfortunately, funds have been limited, so that numerous petitions for aid have had to be refused. The federal subsidies, which formerly amounted to nearly two million dollars, were reduced in the year of the current report to $1,250,000 and have since declined further. The contributions of the league have dwindled. In addition to these sources of income, the Notgemeinschaft received a grant from the Rockefeller Foundation, designed chiefly for an anthropologic survey of the population of Germany and for the granting of scholarships to medical men for foreign study. A further grant of $35,000 was made by the Reichsrundfunkgesellschaft (federal broadcasting system) for researches in physics, particularly in the field of electric vibrations.

At the end of the last fiscal year, the Notgemeinschaft had obligations of over a half million dollars; hence, a large part of the existing funds had to be used to cover these, so that less than $200,000 could be granted for experimental research. It was found necessary to cancel grants amounting to nearly $200,000. Many forms of research that had been begun were seriously checked, which disappointed many investigators. In the future, all grants will contain the proviso that they will not be valid unless the necessary funds are actually secured by the Notgemeinschaft. Not only for psychologic reasons but also in the interest of a systematic business organization, this innovation will be generally approved.

In the main, however, the Notgemeinschaft has fulfilled its purpose. Some of the most important researches for which grants were made were in the fields of political economy, public health and public welfare, which were carried out in accordance with large-scale uniform plans, in which younger scientists were utilized to the fullest extent. Aid was furnished also for research in the fields of metallurgy, geophysics, electrotechnics, heat engines, aviation, agriculture, forestry, veterinary medicine, and astronomy, chemistry, physics and medicine.

By a comprehensive exchange of duplicates in Germany and in foreign countries, much valuable scientific literature was acquired. Grants for the printing of scientific publications had to be reduced to a low level; but, with such labor, it proved possible to furnish the necessary funds for the most important scientific journals.

Many objectives of the Notgemeinschaft could not be reached, nor were sufficient funds available to give the necessary encouragement to young scientific investigators. Science and research are, however, of great importance for the promotion of economics and scientific practice, and are of paramount importance for the intellectual life and culture of a people. In this connection, the scientific activities of the people as a whole were considered more significant than the brilliant performances of a few. The supplying of the means for such development must therefore be forthcoming, in spite of economic disturbances, and likewise, possibly, a more cautious use of funds by the Notgemeinschaft must be instituted.

The Death of Hermann Küttner

Prof. Hermann Küttner, ordinarius in the department of surgery at the University of Breslau, died in Munich, October 10, in the clinic of his friend Professor v. Romberg, on his sixty-second birthday. Küttner became, in 1897, instructor in surgery at the University of Tübingen, and at the age of 34 occupied the post of ordinarius. In 1907 he was called to the University of Breslau as the successor of Garré to occupy the chair of surgery made famous by Mikulicz. Küttner was well known for service in the field of war surgery. As director of the military hospital equipped by the Red Cross Society, he participated in 1897 in the Greco-Turkish campaign and in 1899-1900 in the Boer War. He then took over the direction of the Red Cross Hospital during the Chinese troubles in Tsingtau. He took part in the World War as consulting surgeon and was twice wounded. Küttner was the publisher of *Deutsche Chirurgie* and *Neue deutsche Chirurgie*, the *Brunssche Beiträge zur klinischen Chirurgie*, "Ergebnisse der Chirurgie und Orthopädie" and the "Handbuch der praktischen Chirurgie." Küttner was highly esteemed also for his personal qualities.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 20, 1932.

Diabetes and the Hypophysis

Drs. Houssay, Biasotti and Rietti recently lectured before the Academia de Medicina of Buenos Aires on the results of experiments on the rôle of the hypophysis in the development of diabetes. In experiments on toads, they found that diabetes does not develop in those animals deprived of the hypophysis when the pancreas is removed. However, if they are treated by the subcutaneous implantation of the anterior lobe of the hypophysis of fishes, birds or mammals, diabetes develops. Dogs deprived of the hypophysis and subjected to the action of an injection of phlorhizin have an elimination of dextrose and nitrogen slower than that of normal dogs and die with hypoglycemia. Dogs deprived of the hypophysis and later on deprived also of the pancreas suffer the development of a diabetes of slow evolution, with long periods of almost complete disappearance of the diabetic symptoms. Many dogs in this group have hypoglycemic crises ending in death if they are not given sugar. The authors succeeded in provoking moderate glycosuria by the administration of a daily intraperitoneal injection of 10 cc. of an extract prepared from the anterior lobe of the hypophysis of oxen, in 70 per cent of a group of rats. The injections were given for two or three days, according to the method described by Evans and Simpson in 1931. A daily intraperitoneal injection of 50 cc. of the same extract to dogs was followed after from two to four days by the appearance of glycosuria with polyuria and hyperglycemia. When the injections were discontinued the glycosuria persisted for from two to four days longer, and after this period the animals returned to normal. Dogs that were

deprived of a portion of the pancreas (from 2 to 6 Gm. of pancreas being left) and that had normal glycemia and diabetes were given twelve treatments of four days each by a daily intraperitoneal injection of 10 cc. of the hypophyseal extract. The animals showed glycosuria as well as hyperglycemia and intense ketonuria. The hormone of the anterior lobe of the hypophysis has an extrapancreatic and antagonistic action to insulin, although it is still uncertain whether the effects of this action are caused by the inhibition of the pancreatic secretion or by the neutralization of insulin itself.

Medical Week on Dermatology and Syphilology

A medical week was observed in Buenos Aires, August 16-22, to commemorate the twenty-fifth anniversary of the establishment of the Asociación Argentina de Dermatología y Sifilología. There were lectures and demonstration of cases in hospitals. Dr. P. Baliña was president. The following physicians read papers: Drs. Bonarino Udaondo, on the rôle of syphilis in digestive pathology; M. Castex, on tabes, and Drs. Padilla, May and Benarós, on diseases of the cardiovascular, the respiratory and the renal apparatus, respectively. Dr. Negroni read an article on the treatment of actinomycosis by means of a vaccine that has had favorable results in the practice of several Argentine physicians. Drs. Puente of Buenos Aires and Fernandez of Rosario spoke on the serology of leprosy. Dr. Fidanza read an important article on the present status of the treatment of leprosy.

New Medical Society

The Asociación Médica Argentina is an organization interested only in scientific medicine. The necessity of a medical organization to enforce the ethics and to protect the interests of the profession has been considered, and a medical syndicate was organized some time ago. The syndicate, for some reason or other, has at the present almost disappeared. Recently a medical organization has been established under the name of Colegio de Médicos of the Federal Capital. Dr. E. Boero is the president. The organization aims to improve the ethics of the medical profession, to defend the interests of the profession, and to establish social and scientific centers and branches of the organization throughout the country. It has found favorable support from physicians.

Foreign Lecturers in Argentina

Some foreign physicians who have come to Argentina answering invitations of the Argentine medical profession have recently lectured before the Academia de Medicina and the Faculty of Medicine of Buenos Aires. Sir W. Bragg, of the Royal Institute of London, recently spoke on the structure of solid bodies in their relation to biology. Dr. A. P. Dustin of Brussels lectured on the thymus and the action of radiations. His lectures aroused great interest. Dr. Novoa Santos, professor of general pathology of the University of Madrid, lectured recently on several important general medical topics, in several medical centers of Argentina. Dr. J. Barcroft of Cambridge recently lectured in several medical centers of Buenos Aires. He lectured in Spanish, before an audience of about 400 physicians and students, in the auditorium of the Asociación Médica Argentina, on "Adaptation to Anoxemia in Man." He said that polycythemia, the expansion of the thorax, the increased oxygenation of the blood and the greater affinity of hemoglobin to combine itself with oxygen should be considered as manifestations of adaptation of the organism to the environment rather than as pathologic symptoms. Dr. Barcroft showed a film in which the spinal reflexes of the cat and the monkey were shown. He also had his audience hear the sounds resulting from electrical stimulation of the nerves—phonographic records of the vagus nerve during operations or insufflation of the lungs, those of the carotid sinus during acute hypertension and hypotension, and those of the muscular sensory nerves during different phases of contraction of the muscles. The speaker also showed two films on the technic and results of the contraction of the spleen, before the Academia de Medicina of Buenos Aires. Dr. Dévé of Rouen came to Argentina answering a cordial invitation from the Asociación Médica Argentina. He delivered fifteen lectures before parasitology classes, surgical and medical clinics, and the recently organized hydatidosis society. His lectures were based on his fifteen years experience. The speaker stated that the prevention of the disease is based on the prevention of the development of the disease in lambs. He spoke on bronchogenic echinococcosis, on hydatidoperitoneum, on alveolar echinococcosis and on the rupture of the cysts in the bile ducts. He also spoke on the experimental production of hydatid infection.

Teachers Appointed

Drs. P. I. Elizalde and J. C. Llames Massini have been appointed professors of pathologic anatomy and of obstetrics, respectively, in the Faculty of Medical Sciences of Buenos Aires and in the school for midwives of the same city.

ITALY

(From Our Regular Correspondent)

Sept. 15, 1932.

The Academy of Medicine of Turin

At the meeting of the Academy of Medicine of Turin, Drs. Zeneff and Stoppani reported on a radiographic study of the lymph glands and the lymphatic circulation. Having applied subcutaneous injections of thorium dioxide to the feet of guinea-pigs, the speakers prepared a series of roentgenograms, allowing various intervals of time between them, in which the shadows of the lymph vessels of the extremities and of the popliteal and inguinal lymph glands are plainly evident. The thorium dioxide, enclosed in the lymph glands, either free or engulfed by the phagocytes, does not exert destructive action on the lymphoglandular tissues or on the structure of the lymph glands. The speakers hold that these researches, when developed with a more perfect technic, may prove to be of great importance.

Professor Cionini presented the results of research on the clinical significance of changes in the protein content of the blood serum in hepatic disorders. He observed that in the evolution of various diffuse disorders of the liver the albumin-globulin quotient is usually parallel to the degree of the functional lesion of the liver. The quotient declines steadily in cases that produce pronounced hepatic insufficiency and rises almost to normal values in cases in which subjective and objective improvement occurs. It is likely that the albumin-globulin quotient is a fairly precise index of hepatic functioning and has, as against other tests, the advantage of being more easily applied. The determination of this quotient may be of great value in differentiating, among the various ascitic syndromes, those that are attributed to a hepatic disorder, since in such cases the quotient is always lowered and generally inverted.

Convention to Promote Physical Education Among Children

The physicians who are members of the Opera Nazionale Balilla, an organization for the aid of children, held their second convention in Rome. This society endeavors to promote physical education among children. Professor Versari of Rome, a senator and an anatomist, presided. Professor Banissoni of Rome presented a paper on "Physical and Mental Work in Relation to the Child." This problem has a national interest. Its solution is based on perfect harmony in the development of the personality of the child, which is secured through the integration of physical and mental work and sport activities.

Professor Midulla spoke on "The Educational Value of the Mutual Interchange of Ideas Among Children." The speaker recalled the recent drafting of laws pertaining to the compulsory

notification, by midwives and health officers, of children born crippled or who have become crippled through some misfortune. The purpose is to learn of the cases which institutions that provide reeducation for the handicapped may help. The Opera Balilla is such an institution; for, in addition to caring for the hygienic education of healthy children, it aids the sick by means of its consultation centers and its ambulatoriums; with its open-air schools and its climatic treatments in seaside colonies it helps those who are weak and predisposed to disease.

Professor Pende of the University of Genoa discussed the orthogenic control of adolescents, explaining the methods used by his "school" and the results secured.

Professor Valagussa dealt with the health service in the schools. It is incumbent on the school authorities to harmonize the purposes of mental training with the hygienic development of the mind, which should be kept sound by the rationalizing effect of muscular exercise.

A number of papers were presented by regional physicians on the crusades against goiter, adenoids, malaria and trachoma, which are being carried on under the auspices of the association.

Le Ricci surveyed the work accomplished thus far in the sanitary campaign and in the development of social insurance. Since January, 1929, 71,142 persons who had suffered accidents had been aided at an expense of 3,890,000 lire ($204,225). In the present year, 500,000 children have been visited, 58,519 having been aided on account of disease and 18,356 on account of accidents. There were 1,037 courses organized in hygiene and first aid, 613 first aid crews were equipped and given instruction, and 732,418 biotypologic record cards were made out. A central medical commission is to be created, to which will be entrusted the task of determining the trends of sanitary work in the whole field.

The "Artificial Pneumothorax" Association

The "Artificial Pneumothorax" Association, which is of international scope, having been founded in 1912, by followers of Forlanini, has been recently reorganized with a new program. The bulletin of the association, in addition to a list of the physicians and institutions that specialize in the treatment of tuberculosis, will publish bibliographic data on the principal works on collapse therapy appearing in various countries; also all communications sent to it on the scientific aspects of collapse therapy, instruments, new methods of technic, meetings—in fact, everything of a general nature that reflects the activities in the field of collapse therapy throughout the world. The association is planning also to collaborate in the securing of funds for the erection in Rome of a monument to Carlo Forlanini.

Marriages

HAROLD I. L. LOVERUD, Manchester, N. H., to Miss Katharine Leanore Floto of Oak Park, Ill., September 17.

JOHN SHERMAN FOWLER, Baltimore, to Miss Elizabeth Sherrod Hodgin at Greensboro, N. C., September 9.

WILLIAM LEE CLARK, Harrisburg, Pa., to Miss Marguerite McLeod Peery of Winchester, Va., August 31.

JOSEPH WARREN HUNDLEY to Miss Margaret Isabel McCaughan, both of Philadelphia, October 8.

KESTER ST. CLAIR FREEMAN to Miss Anna Leigh Hawthorne, both of Kenbridge, Va., October 12.

FREDERICK SCARBOROUGH GRAY, Portsmouth, N. H., to Miss Hilda Redman, August 12.

WALTER W. FUGITT, St. Petersburg, Fla., to Mrs. Josephine Engle of New York, August 20.

JOSEPH L. AMOROSE, Chillicothe, Ill., to Miss Alyce Lorraine Read of Chicago, September 11.

FREDERICK THOMAS BOND, Brooklyn, to Miss Helen Smith, at Draper, N. C., September 10.

FREDERIC J. PLONDKE, St. Paul, to Miss Madeline May Bruchman, recently.

Deaths

Adolph Koenig ⊕ Edgewood, Pa.; Bellevue Hospital Medical College, 1879; member of the House of Delegates of the American Medical Association in 1908 and 1914; professor of materia medica and botany, 1885-1903, physiology, 1904-1911, Pittsburgh College of Pharmacy, and the Pharmaceutical Department of the University of Pittsburgh; past president of the Medical Society of the State of Pennsylvania and the Allegheny County Medical Society; member of the Board of Medical Education and Licensure of the Department of Public Instruction of Pennsylvania, 1909-1927; member of the advisory board of the department of health, 1905-1923; director of public schools in Edgewood, 1906-1931; visiting physician to the Pittsburgh Free Dispensary, 1880-1895, Allegheny General Hospital, 1904-1907, and the Roselia Foundling Asylum and Maternity Hospital for fifteen years; in 1912, consulting physician to the Western Pennsylvania Hospital; editor and publisher of the *Pittsburgh Medical Review*, 1886-1897, and the *Pennsylvania Medical Journal*, 1897-1904; aged 76; died, October 13.

E. Bates Block, Atlanta, Ga.; University of Virginia Department of Medicine, Charlottesville, 1895; professor of neurology and psychiatry, Emory University School of Medicine; fellow of the American College of Physicians; member of the Medical Association of Georgia, American Neurological Association, the Association for Research in Nervous and Mental Diseases and the American Psychopathological Association; visiting neurologist to the Grady Memorial Hospital and visiting neurologist and psychiatrist to the Wesley Memorial Hospital; aged 58; died, October 25.

John Weatherson ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; formerly associate professor of medicine at his alma mater; served during the World War; past president and secretary of the southside branch of the Chicago Medical Society; on the staff of the Illinois Masonic Hospital and formerly on the staff of the Cook County Hospital; aged 59; died, October 22, in St. Luke's Hospital, of auricular fibrillation and aortic stenosis.

John Nicholas Lenker, Cleveland; College of Physicians and Surgeons, Baltimore, 1886; member of the Ohio State Medical Association and the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; at one time associate clinical professor of otology, rhinology and laryngology, Western Reserve University School of Medicine; formerly otolaryngologist to the Fairview Hospital and St. Luke's Hospital; aged 67; died, October 20.

J. Frank Friesen ⊕ Los Angeles; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1907; member and secretary of the Pacific Coast Oto-Ophthalmological Society; aged 51; on the staffs of the California Lutheran Hospital and the Los Angeles County Hospital, where he died, September 8.

Gordon Wilson ⊕ Baltimore; University of Virginia Department of Medicine, Charlottesville, 1899; professor of medicine, University of Maryland School of Medicine and College of Physicians and Surgeons; member and past president of the American Climatological and Clinical Association; served during the World War; aged 55; died, October 26, in the Union Memorial Hospital, of heart disease.

Katherine Gerow, Detroit; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; member of the Associated Anesthetists of the United States and Canada; formerly a medical missionary; on the staffs of the Harper Hospital and the Highland Park (Mich.) General Hospital; aged 67; died, October 22, in Battle Creek, of esophageal hemorrhage.

William A. Wyman, Cheyenne, Wyo.; Eclectic Medical Institute, Cincinnati, 1878; member of the Wyoming State Medical Society; for many years member of the school board; at one time secretary of the state board of health; formerly on the staff of the Memorial Hospital of Laramie County; aged 77; died, October 6, of pneumonia.

Irving Miller Snow, Buffalo; University of Buffalo School of Medicine, 1881; member of the Medical Society of the State of New York; formerly professor of diseases of children at his alma mater; on the staffs of the Buffalo General Hospital, Children's Hospital and the Buffalo City Hospital; aged 73; died, October 16, of emphysema.

Charles Frederic Johnson, Newburyport, Mass.; Boston University School of Medicine, 1884; member of the Massachusetts Medical Society; formerly member of the school committee; aged 71; on the staff of the Newburyport Homeopathic Hospital, where he died, October 12, of uremia, following an operation for prostatic hypertrophy.

William C. Goodno, Pasadena, Calif.; Hahnemann Medical College of Philadelphia, 1870; professor emeritus of medicine at his alma mater; formerly attending physician to the Hahnemann Hospital, Children's Hospital and the Woman's Hospital, Philadelphia; aged 82; died, October 27, of angina pectoris.

Abraham Philip Zemansky, New York; College of Physicians and Surgeons in the City of New York, 1874; for many years on the staff of the Lebanon Hospital; aged 81; died, October 21, in the Sydenham Hospital, of pneumonia, following injuries received when struck by a falling business sign.

Philip F. Weamer, Coldwater, Ohio; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1893; member of the Ohio State Medical Association; mayor of Coldwater; aged 66; died, October 14, in a sanatorium at Shelbyville, Ind., of heart disease.

Charles Dolph Humes ⊕ Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; served during the World War; on the staff of the Methodist Episcopal Hospital; aged 50; was found dead, October 28, of chronic myocarditis and nephritis.

Ernst Huber, Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1927; associate professor of anatomy at his alma mater; member of the American Association of Anatomists; aged 40; died, October 24, in the Johns Hopkins Hospital, of poison, self-administered.

Otto Ferdinand Westerfeld, San Francisco; Cooper Medical College, San Francisco, 1900; served during the World War; for many years on the staff of the Franklin Hospital; aged 57; died, September 17, when the automobile in which he was driving overturned.

Flavius Franklin Kimbrough, Jr., Kimbrough, Ala.; Medical Department of the Tulane University of Louisiana, New Orleans, 1889; member of the Medical Association of the State of Alabama; aged 66; died, September 1, of carcinoma of the esophagus.

Michael Abraham Rivkin, Detroit; University of Vladimira, Russia, 1897; member of the Michigan State Medical Society; aged 61; died, October 13, in the Highland Park (Mich.) General Hospital, of poison, presumably self-administered.

Archibald Doerr Jones ⊕ Wichita, Kan.; Barnes Medical College, St. Louis, 1898; served during the World War; fellow of the American College of Surgeons; member of the surgical staff of St. Francis Hospital; aged 55; died in October of peritonitis.

Emanuel Schwarz ⊕ Newark, N. J.; Medical Department of the University of the City of New York, 1887; at one time county coroner; formerly superintendent of the Newark Beth Israel Hospital; aged 73; died suddenly, October 20, of heart disease.

Charles B. Horrell, Galesburg, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1884; member of the Illinois State Medical Society; aged 81; died suddenly, October 28, of cerebral hemorrhage.

John Emerson Monger, Columbus, Ohio; Medical College of Ohio, Cincinnati, 1902; formerly chairman of the public health council and director of health, Ohio Department of Health; aged 55; died, October 28, of cerebral hemorrhage.

Ernest August Rappanier, New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1894; member of the Louisiana State Medical Society; aged 60; died, October 9, of acute myocarditis and diabetes mellitus.

Claude M. Harris, Cheneyville, La.; University of Nashville (Tenn.) Medical Department, 1897; member of the Louisiana State Medical Society; aged 58; died, October 6, in the Lecompte (La.) Sanitarium, of intestinal obstruction.

Charles Walter Cable, Nelsonville, Ohio; Medical College of Ohio, Cincinnati, 1880; Bellevue Hospital Medical College, New York, 1881; member of the Ohio State Medical Association; aged 73; died, October 14, of carcinoma.

Leon Woodford Kelso ⊕ Paxton, Ill.; Northwestern University Medical School, Chicago, 1915; served during the World War; aged 42; died, October 13, in the Passavant Hospital, Chicago, of coronary occlusion.

Carroll Brice Mount, Memphis, Tenn.; University of Tennessee College of Medicine, Memphis, 1929; medical missionary in Africa; aged 30; was drowned, recently, in a lake near Lusambo, Belgian Congo, Africa.

William Edgar Wright, Greenville, S. C.; Medical College of the State of South Carolina, Charleston, 1880; formerly member of the city council; aged 73; died, September 8, of chronic cholecystitis and cholelithiasis.

Albert L. Brannock, Pontiac, Mich.; Detroit College of Medicine, 1903; member of the Michigan State Medical Society; formerly school physician; aged 60; died, October 13, of carcinoma of the parotid gland.

Thomas Hamlin Hudgens, Sneads, Fla.; University of Alabama School of Medicine, Mobile, 1910; member of the Florida Medical Association; aged 47; died suddenly, August 28, of cerebral hemorrhage.

John Burney Shamburger ⊕ Star, N. C.; University of Maryland School of Medicine, Baltimore, 1890; aged 75; died suddenly, October 11, in the Wesley Long Hospital, Greensboro, of heart disease.

William Martin Park, Indianola, Iowa; College of Physicians and Surgeons, Keokuk, 1876; member of the Iowa State Medical Society; aged 78; died, September 1, of angina pectoris.

Cora E. Brown Lutz, Millersburg, Ind.; Cincinnati College of Medicine and Surgery, 1890; aged 63; died, August 13, of probable carcinoma of the liver and myocarditis.

George W. Murphy ⊕ Strong, Ark.; Medical Department of the Tulane University of Louisiana, New Orleans, 1894; aged 59; died, September 15, of angina pectoris.

William Eugene King, Kansas City, Mo.; University Medical College of Kansas City, 1897; aged 67; died, September 8, in St. Luke's Hospital, of pneumonia.

Frank A. Dunbar, Bonita, Calif.; Harvard University Medical School, Boston, 1883; aged 75; died, August 22, of coronary embolism and mitral insufficiency.

James Wright Miller, Little Rock, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; aged 70; died, September 19, of angina pectoris.

Jesse Lee Hagadorn ⊕ Los Angeles; University of Southern California College of Medicine, 1893; aged 60; died, September 5, in San Gabriel, of myocarditis.

J. Luther Luck, Hope, Ark. (licensed, Arkansas, 1903); member of the Arkansas Medical Society; aged 57; died, September 15, of cerebral hemorrhage.

Henry Justus Herrick, Hudson, Ohio; Medical Department of Western Reserve University, Cleveland, 1894; aged 65; died, October 30, of glaucoma.

Andrew Jackson Lovell, Dalhart, Texas; Memphis (Tenn.) Hospital Medical College, 1902; aged 56; died, September 6, of cerebral hemorrhage.

Samuel Elmer Hooper, Carlisle, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1904; aged 65; died, August 31, of heart disease.

Albert Debrisy Boyle, Medford, Mass.; McGill University Faculty of Medicine, Montreal, 1877; aged 77; died, September 4, of uremia and nephritis.

Jesse Grim Kistler ⊕ Allentown, Pa.; Baltimore Medical College, 1888; aged 69; died, October 25, in the Sacred Heart Hospital, of appendicitis.

Sarah L. Kennedy Honey, Yorba Linda, Calif.; Chicago Homeopathic Medical College, 1878; aged 74; died, September 16, of pulmonary edema.

Maud Mead, Lawton, Okla.; Medical Department of Omaha (Neb.) University, 1896; aged 69; died, August 25, in Fletcher, of cerebral hemorrhage.

Claude B. Higby, Los Angeles; Marion-Sims College of Medicine, St. Louis, 1896; aged 64; died, September 26, of cerebral hemorrhage.

John M. Pickel, Terre Haute, Ind.; Kentucky School of Medicine, Louisville, 1893; aged 74; died, September 26, of cerebral hemorrhage.

Ralph Waldo Hull ⊕ Nortonville, Kan.; Kansas City Medical College, 1905; aged 53; died, September 30, of cerebral hemorrhage.

James Byron Donnell, Oceanside, Calif.; Chicago College of Medicine and Surgery, 1913; aged 57; died, August 31, of angina pectoris.

Moses Henry Wheat, Marshall, Texas; University of Texas School of Medicine, Galveston, 1902; aged 69; died, July 10.

Bureau of Investigation

MAHLON W. LOCKE

The Latest Addition to the Miracle Men

Mahlon W. Locke, M.D., of the little village of Williamsburg, Ontario, occupies the stage as the Miracle Man of 1932. The doctor's technic does not happen to be of the electrical or magnetic type; he does not use colored lights or require his dupes to wear iron rings. His stunt consists, as his enthusiastic proponents have declared, of "toe-twisting," and his specialty is what the public vaguely calls rheumatism. Dr. Locke was graduated by Queens University Faculty of Medicine, Kingston, Ont., in 1905, and was licensed to practice in Ontario in 1906. He also is said to have passed the examination of the Triple Qualification Board of Scotland in 1908 and to be a licentiate of the Royal College of Physicians, Edinburgh, the Royal College of Surgeons, Edinburgh, and the Royal Faculty of Physicians and Surgeons, Glasgow. Dr. Locke has been in the miracle-man business for at least two or three years, and in spite of the fact that he has claimed to have developed a technic that brings him tens of thousands of patients annually, he has not seen fit to tell any other physicians about it; medical literature contains not a single article by him, so far as a careful search has been able to determine.

Dr. Locke's publicity has been wholly through the newspapers and magazines. A newspaper man in New York state is alleged to have been the first one to bring Dr. Locke into the public eye. Incidentally, newspaper men are probably, as a class, the most gullible in the medical field of any trained group. The Sunday edition of the New York *Times*, as long ago as Nov. 16, 1930, carried a story about Dr. Locke under the heading "Canadian Surgeon Wins World Fame," describing the doctor as a "specialist" in "fallen arches." About a month later the St. Louis *Post-Dispatch* in a Sunday edition ran a half-page illustrated article puffing Dr. Locke's alleged skill as an orthopedist. The weekly Toronto *Star* of Aug. 22, 1931, carried another illustrated article about Dr. Locke. But the present interest in the wizard of Williamsburg has been due to the wide publicity given to Dr. Locke by Mr. Rex Beach, whose article, "The Pain-Killer" appeared in Hearst's *International-Cosmopolitan* for August, 1932. The article must have been considered good human-interest stuff, for it has been reprinted in the Sunday editions of at least one of Mr. Hearst's newspapers. Still more recently another article was published, in the *Daughters of the American Revolution Magazine* for October, while the Brooklyn *Eagle* of October 3 carried a less pretentious story recording the alleged cure of a child who had been unable to walk, due to an attack of poliomyelitis.

All of the articles agree that Dr. Locke "treats" an enormous number of cases daily, ranging from 300 to 500 according to the St. Louis article of 1930, up to 1,000 in the Rex Beach article, and 1,400 in the *D. A. R. Magazine* story. The articles are also in agreement in stating that Dr. Locke makes a flat charge of a dollar a treatment. In the St. Louis *Post-Dispatch* article, it was stated in 1930 that Dr. Locke was clearing $150,000 a year. There are the usual artistic touches that go with stories of this sort, and they appear with minor modifications in most of the articles published. There is the claim that Dr. Locke was offered a special department in some great medical institution in the United States, but that he spurned the offer, stating: "No, my mission is here." Whether or not the story has any foundation in fact, the unregenerate might suggest that a man who is making $150,000 a year in a village of 400, with an overhead that must be exceptionally low, could have other reasons besides a "mission" for staying where he was.

There is the story of the wealthy American—and whoever read a story of this sort in which a wealthy American did not figure—who, having been cured by Dr. Locke's manipulations, sent the doctor "a check for $10,000, which was returned by the next mail." The *D. A. R. Magazine* article has a variant on this phase, to the effect that a recent visitor who had been "greatly benefited" proffered Dr. Locke a check for $1,000, which the doctor tore up and said: "One dollar, please."

No story of this kind would make a popular appeal unless its hero came of humble and, preferably, rural antecedents. So we are not surprised to read that Dr. Locke was born on a little farm not far from the village of Williamsburg, attended country school and later high school as a preliminary to taking up the study of medicine.

From Mr. Rex Beach, we learn that Dr. Locke has been treating between 800 and 1,000 people a day, attending to them at the rate of three a minute, while at the same time he "maintains a general practice" and "has attended every confinement in the county and has never lost a mother or child." It appears from other information received that Dr. Locke is somewhat of a wizard in the treatment of goiter. In this connection a South Carolina physician recently wrote:

> "One of my patients who has just consulted Dr. Locke of Williamsburg, Canada, has returned with some tablets which Dr. Locke has given her for an assumed active hyperthyroid disease. The tablets, he has assured her, will effect a cure after three boxes."

There seems to be a subsidiary industry in connection with Dr. Locke's manipulations—a shoe factory—for one gets the impression from the various stories that after the one-third minute toe-twisting formula has been delivered, special shoes are ordered. The writer of the article in the *D. A. R. Magazine* reported that her case was diagnosed as "arthritis from fallen arches" and she was told to get "Last No. 1." When she went to the shoe store, she was—to use the title of her article—"The End of the Line," with 159 customers ahead of her. She mentioned, also, one woman who had bought nine pairs of these special shoes to take home with her. Of this phase of the Williamsburg industry, Mr. Beach says:

> "A Canadian shoe manufacturer turns out shoes according to Dr. Locke's ideas, and so great is the demand for them that several clerks are kept busy in the remodeled barn alongside his house."

Just what manipulation Dr. Locke gives is not clear, as he has not seen fit to pass on his magic formula to the medical profession. Had he done so, it might be possible for physicians to evaluate the treatment and adopt it if it seemed worth while, and thus make the miracle treatment generally available. There is evidence to the effect that Dr. Locke manipulates the first metatarsal, internal cuneiform and scaphoid (navicular), with the thumb of one hand against the head of the scaphoid and the other hand holding the first metatarsal. Just what that actually accomplishes deponent sayeth not.

Mr. Beach, toward the end of his story, allows his early training in the law to supplant the novelist, when he says:

> "It would be interesting and illuminating from a scientific standpoint to learn how many thousands Dr. Locke has treated and from what they have suffered."

It would! Still more illuminating would be a truthfully-kept record of the end-results of the Locke manipulations. But, we are told, the doctor keeps no books, makes no appointments, knows but a few of his patients by name, and "does business on a cash basis."

By the law of averages, it is inevitable that a man treating a thousand patients a day by manipulation and in the psychologic atmosphere inseparable from such a shrine, must persuade many that they have been benefited. In such large groups there must be many psychoneurotics whose inhibitions are lifted by the combined manipulations and psychic reactions of the surrounding circumstances, and who, until the end of time, will testify that they have been cured.

A well-known Canadian physician has well summed up the case of Dr. Locke when he wrote:

"I venture to think that in his quiet moments he must smile to himself to realize what a potent influence the press can be; but when the tumult and the shouting dies, he will, no doubt, like many another, pass into oblivion, but with his pockets well-lined."

Output of Mammalian Heart.—The stroke volume output of the mammalian ventricle is largely dependent upon a uniform and nearly simultaneous contraction of all parts of its musculature. This is brought about by the highly specialized His-Tawara-Purkinje system with its specific anatomical arrangement and conduction capacities.—Davis, David: Ventricular Tachycardia: An Interpretation of the Nature of Its Mechanism, *Am. Heart J.* **7**:725 (Aug.) 1932.

Correspondence

GALACTOSE FOR DIABETIC PATIENTS

To the Editor:—I have read with interest the editorial on galactose in THE JOURNAL, September 3. From your editorial based on the report of Roe and Schwartzmann (*J. Biol. Chem.* **96**:717 [June] 1932), one gathers that galactose is as well tolerated by diabetic patients as by normal individuals and may be used as a source of energy by diabetic patients with less harm than dextrose. I cannot subscribe to these assumptions.

The experiments of Mann and his co-workers following complete liver extirpation in dogs have shown the importance of available blood sugar in the maintenance of life. When they injected dextrose into the blood stream of an animal moribund because of the hypoglycemic state following hepatectomy, recovery was usually complete in from one to four minutes. However, the beneficial action of a like amount of galactose, similarly administered, was so slight and transient that its effect could scarcely be noted, unless the animal was under the closest observation (Mann, F. C., and Magath, T. B.: *Arch. Int. Med.* **30**:171 [Aug.] 1922). This clearly indicates that circulating galactose means practically nothing to the animal economy without the intervention of the liver.

In studies on the metabolism of galactose in human subjects, we (Shay, Harry; Schloss, E. M., and Bell, M. A., *Arch. Int. Med.* **47**:391 [March] 1931) have shown the same to be true in the human economy. Four patients, three normal persons and one diabetic, ingested on one occasion 40 Gm. of galactose dissolved in 500 cc. of water. A week later they ingested the same amount of galactose but also received 10 units of insulin hypodermically. The blood and urinary sugars were studied at regular intervals for three hours after the ingestion of the sugar. In spite of the hypoglycemic reaction produced during the insulin experiments and the needs of the tissues for sugar, definitely comparable amounts of galactose were excreted in the urine during both test periods. These results indicate that circulating galactose in the blood stream is not available for use by the tissues in the human being, even though the tissues are sorely in need of sugar and, secondly, that insulin plays no part in the utilization of galactose, a fact which Roe and Schwartzmann confirm by experiments on rabbits. I may therefore safely state that galactose, in order to become available for consumption by the animal economy, must first be converted into glycogen by the liver, following which it becomes available as a source for dextrose.

With these facts in mind let us examine the observations of Roe and Schwartzmann. They present data showing that the elevation of blood galactose following the ingestion of galactose is no greater in diabetic patients than that obtained in normal subjects. They conclude from this that diabetic patients have as good a tolerance for galactose as do normal subjects. In the light of what has been stated with regard to the rôle of the liver in the utilization of galactose, they can only say from their observations on blood galactose that the liver of diabetic patients may convert amounts of galactose which are comparable to that converted by normal subjects. Their blood galactose curves are measures of the liver activity and have nothing to do with the presence or absence of diabetes. They state further that a second significant observation from their data is that there is no greater excretion of galactose in the urine by diabetic subjects than by normal subjects. This fact is not significant and is exactly what should be expected in view of the foregoing data. Since galactose is utilized only by the liver and the tissues cannot utilize circulating galactose, and since insulin is not concerned with its utilization, why should not similar amounts of galactose appear in the urine of diabetic patients as well as of normal subjects, after the ingestion of similar amounts of that sugar, provided their livers are of equal functional activity and especially since there is no kidney threshold for galactose?

Their data showing the higher and more rapid rise of the blood sugar curve in diabetic patients, following the ingestion of dextrose as compared to that after a similar amount of galactose, does not to me indicate any additional evidence of the greater tolerance of galactose. This again reverts to a consideration of the rôle of the liver in galactose metabolism. Absorbed galactose, in passing through the process of conversion to glycogen and thence to dextrose, would certainly be less readily available as a source for blood dextrose than would be dextrose absorbed as such and would be expected to cause a slower and less marked rise in blood sugar. The situation is entirely analogous to what would be expected in the blood sugar curves after the ingestion of similar amounts of dextrose and of starch. In the case of starch, its availability to raise blood sugar is slowed up in the intestine, while in the case of galactose this slowing up takes place in the liver.

The only true measure of the tolerance for galactose must be sought in the effect it has on the level of fermentable sugar in the blood, since the blood galactose curve is only a measure of its utilization by the liver. An analysis of the figures from this standpoint, in charts 1 and 2 from the article by Roe and Schwartzmann, fails to substantiate their conclusions. If the fermentable blood sugar readings, calculated by subtracting their blood galactose readings from their total blood sugar readings, are compared in their normal and diabetic subjects, with the fasting blood sugar level in the same individual one finds a very distinct difference in the two groups. The normal group one hour after the ingestion of the galactose showed an average drop of 36 mg. per hundred cubic centimeters of blood, while the diabetic group showed an average increase of 22 mg. per hundred cubic centimeters. It appears, therefore, that the diabetic patient showed on the average a fermentable blood sugar rise of 58 mg. per hundred cubic centimeters higher than that which occurred in the normal individual after the ingestion of similar amounts of galactose. Such a difference in the blood sugar level hardly speaks for an equally good tolerance.

It is interesting to note in passing that Roe and Schwartzmann were unable to find a higher tolerance for galactose in women than in men, as stated by Rowe (*J. Biol. Chem.* **55**:vi [Feb.] 1923). We had previously pointed out this fact.

Galactose as such is not utilizable as a source of energy by the animal economy, and its equally good tolerance by diabetic patients and normal subjects has yet to be shown.

HARRY SHAY, M.D., Philadelphia.

CELIAC DISEASE

To the Editor:—In a recent article of mine (Celiac Disease: Its Specific Treatment and Cure Without Nutritional Relapse, THE JOURNAL, August 6), MacLean and Sullivan were given credit for first having called attention to the low blood sugar curve in this disease. This was an error.

The facts are that T. E. Hess Thaysen of Copenhagen had published a paper on nontropical sprue and pancreatogenous diarrhea (*Acta. med. Scandinav.* **64**:292, 1926) in which attention was first called to the low blood sugar curve.

Friedrichsen, on reading this paper, suggested that in view of the similarity of the two diseases the carbohydrate metabolism of celiac disease might show something of interest, whereupon Miss Svensgaard investigated the blood sugar curve in a case of celiac disease, under the tutelage of Thaysen, which Thaysen reported at the fortieth Kongress für innere Medizin, held at Wiesbaden in 1928.

Thaysen at this time had two other cases at his disposal but preferred reporting only Miss Svensgaard's case, which he had had an opportunity of checking.

MacLean and Sullivan submitted their paper for publication in January, 1929, and evidently were unaware of this earlier work, as they made no mention of it in their reference.

SIDNEY V. HAAS, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COUGH OF UNDETERMINED CAUSE

To the Editor:—I am writing for some information regarding a patient with a persistent cough of ten years' duration. She is 48 years old and states that the cough developed ten years ago while she was working in a woolen stocking factory. The cough is nonproductive as a rule and when any material is raised it is thin, clear and watery in character. When the attacks of coughing are severe, she vomits. This vomiting has been quite frequent for the last two years and has become worse the last few months. As a rule the cough is worse during the day, after meals and when she is nervous and upset. It does not seem to be asthmatic in character nor does she seem to have an anaphylactic reaction at any time. There has been no loss in weight and no history of tuberculosis. The cough seems to start in the throat, she states. The physical examination is essentially negative. I have found no infection in the nose, throat or larynx. The lungs are normal. The sputum is negative for tubercle bacilli. A roentgenogram of the chest shows evidence of an old bronchitis. The gallbladder and gastro-intestinal roentgenograms are negative. The usual methods of treatment do not give relief. I would appreciate any suggestions as to diagnosis and treatment. Please omit name.

M.D., Illinois.

Answer.—There is a possibility of allergy to some sort of wool, for which tests might be undertaken. If such hypersensitiveness is found there is the choice between avoidance of exposure or, if this is impossible, of desensitization. However, a condition that has lasted so many years is probably no longer due to a single cause but is complicated by bacterial invasion as well as by bronchiectasis and emphysema. In the presence of such anatomic changes, any treatment is apt to be only moderately or temporarily successful. Still, even amelioration is of importance, as the condition has a natural tendency to become progressively worse. A course of treatment with a carefully prepared autogenous vaccine might be undertaken. When the cough is nonproductive, a course of potassium iodide, 0.3 Gm. three times a day, might be useful. If iodide is badly borne, arsenic trioxide, 0.002 Gm. three times a day, may be found of value. As a remedy against the nervous element, sodium bromide, 1 Gm. four times a day, may be added to the medication. A brief course of codeine phosphate, from 0.03 to 0.06 Gm. four times a day, might help in breaking the habit of coughing.

Psychotherapy might be of importance, in the first place an investigation being made of the causes of neuroses, especially of the question What is wrong with the patient's mode of living? Secondly, the patient should be assured that no serious sickness is present. Thirdly, she should be taught to suppress coughing. Patients usually assert that they cannot suppress their cough. This is quite true of a productive cough, and such coughing should not be suppressed. But nonproductive coughing may be suppressed quite successfully by an act of the will and by the diversion of attention, so as to be at least cut down to half or less in frequency and severity. Especially can the emesis be eliminated if the patient understands that straining and retching to "bring up" slime is entirely unnecessary: that if the slime does not come up with one coughing spell it will come up with another. If the cough has a seasonal character and is worse in winter, change of climate to avoid the inclement season may be of great value.

POSITIVE WIDAL TEST

To the Editor:—I have a patient, a former graduate nurse, aged 25, in whom a positive Widal was obtained about ten days following initial symptoms resembling typhoid. She had a low grade pyrexia (from 99 to 101 F.) until after the time the Widal test was positive. Since then the temperature has returned to normal and stayed there (ten days). She had immunization for typhoid in May, 1917; May, 1921; April, 1923; March, 1925, and September, 1928. The presumption is typhoid, but is it possible that (1) the history of previous immunizing doses may produce a positive Widal in the absence of typhoid, or (2) mitigate the severity of the present presumed attack so as to be almost unrecognizable? Kindly omit name and address.

M.D., Ohio.

Answer.—1. There is no doubt that a positive Widal reaction may be obtained for some years after a prophylactic inoculation. The intensity of the reaction and the period over which it persists vary in different individuals. No valid conclusion as to the existence of typhoid infection in an inoculated person can be drawn from a single estimation of the amount of agglutinin in the serum. Some writers maintain that if a series of agglutination tubes is made, a change in the agglutination titer of not less than 200 per cent may be considered evidence of active infection.

2. Nearly all observers agree that the course of typhoid is modified by a previous prophylactic inoculation. In general there appears to be a larger proportion of "abortive" and mild cases among the inoculated. Typhoid bacilli are found less readily in the blood of inoculated patients with declared typhoid than in uninoculated. Vaughan (The Journal, April 17, 1920, p. 1074; April 24, 1920, p. 1145), however, and a few others consider that there is no essential difference in the typhoid syndrome in the vaccinated and the unvaccinated. There is no doubt that severe and fatal typhoid may sometimes occur in the vaccinated.

NITROBENZENE AND FURFURAL

To the Editor:—Being located near one of the large petroleum research and experimental plants where large quantities of both nitrobenzene and furfural are in use, I am naturally desirous of knowing the toxic action of these substances in order that those working with them may be protected. What is their action, if any, both externally and internally, and also what is considered a toxic quantity? What is the action of the vapor? How may the effects be recognized? What are the antidotes? What precautions should be observed? Where may I obtain literature on the subject? Please omit name and city.

M.D., New York.

Answer.—Furfural (furfurol, furol, furaldehyde, furfural aldehyde) is about one third as toxic as formaldehyde. Practically, the former is far less toxic, owing to the fact that it is a liquid with a high boiling point (161 C.). Thus its vapors are not readily formed, while formaldehyde is itself a gas.

Furfural acts locally as an irritant and systemically as a narcotic. The threshold for local action on the skin may not be determined, as this depends chiefly on the susceptibility of the individual. By mouth a 1 per cent solution will produce some action. The threshold for harm by vapor inhalation is unestablished. As a result of systemic involvement, manifestations may be expected to include unsteadiness of gait, inability to stand, impaired coordination, and stupor. Vapors in the air may readily be determined by exposing strips of paper, previously treated with a mixture of equal parts of aniline and acetic acid (80 per cent). In the presence of furfural, the paper will turn red. This test may be made a quantitative one by passing air through this solution and comparing with similar preparations made up with known quantities of furfural. Further information may be found in the following articles:

Korenman, J. M., and Resnik, J. B.: Furfural as an Industrial Poison and Its Detection in Air, *Arch. f. Hyg.* **104:** 344, 1930.
McGuigan, Hugh: Action of Furfural, *J. Pharmacol. & Exper. Therap.* **21:** 65 (Feb.) 1923.

No adequate discussion of the industrial toxicity of nitrobenzene is possible here. Two standard textbooks may be consulted:

Hamilton, Alice: Industrial Poisons in the United States, New York, Macmillan Company, 1929.
Kober, G. M., and Hayhurst, E. R.: Industrial Health, Philadelphia, P. Blakiston's Son & Co., 1924.

From time to time reports have been made in The Journal of cases of nitrobenzene poisoning arising from dyed shoes. In the issue of Jan. 28, 1922, for example, Dr. R. E. Cloud reported a case of poisoning by shoe dye.

The principal features of nitrobenzene poisoning are:

Acute poisoning: (*a*) in mild cases, malaise, headache, giddiness, nausea, loss of appetite, costiveness, and burning sensation of the skin and mucous membrane.

(*b*) In severe cases, a feeling of anxiety, disturbance of sensation, like formication on the legs and furriness of the soles of the feet, ringing in the ears; disturbance of coordination (reeling gait, stammering speech), increased excitability of the reflexes, convulsions and a state of general spasm; later, with decline of sensibility, symptoms of paralysis; vomiting; odor of the vomitus and of the exhaled breath like that of oil of bitter almond; icterus of the skin; at first increased, afterward diminished activity of the heart, with lowered tension of the pulse; visual derangements (amblyopia, optic neuritis); blood viscid, brown to deep dun color; diminution of the red corpuscles and alterations in their form; in the advanced cases, formation of methemoglobin. The course of severe cases is exceptionally varied; after intermissions, exacerbations may occur with a fatal result. Death may occur also in connection with deep insensibility, without other symptoms. Symptoms that point to blood changes predominate, in severe poisoning, over the nervous symptoms.

Subacute and chronic poisoning: Icteritious skin, which gradually becomes cyanotic; methemoglobin formation; symptoms of degeneration and regeneration of the erythrocytes;

general debility, anemia. The clinical picture is similar to that of pernicious anemia. In the urine the poisoned corpuscles are sometimes demonstrable, and finally the presence of hematophorphyrin and of albumin.

Of the two substances specified in the query, nitrobenzene is much more toxic. The ease with which nitrobenzene enters the body through the skin makes it a treacherous hazard at all times.

TOXICITY OF COPPER CARBONATE

To the Editor:—A man, aged 32, has for the past three seasons been cleaning grain, using copper carbonate in the process. Each year he has had abdominal distress, pains in the midepigastrium occurring from one to two hours after eating, usually relieved by food but not awakening him at night. They are not accompanied by nausea, vomiting or constipation. There have been no hematemesis and no tarry stools. No roentgenographic studies for duodenal ulcer have been made. During the past three weeks he has lost 20 pounds (9 Kg.). While not at work cleaning grain he feels fine and rather quickly gains back the lost weight. The formula given on the powder used for dusting the grain is as follows:

Copper (metallic)	51.75%
(Equivalent to basic copper carbonate)	90.00%
Inert ingredients	48.25%

It is manufactured by the Mountain State Copper Company of Martinez, Calif. He states that this work must be done in the open air, as the cloud of dust from it soon causes a sense of choking, and severe pains in the chest, if in a warehouse. Is there a hazard in the use of this material? Is he subject to any permanent disability? He has been given sodium thiosulphate, 10 grains (0.6 Gm.) three times daily. Is the treatment logical? Kindly omit name.

M.D., California.

ANSWER.—The industrial toxicity of copper long has been disputed. It appears to be established that systemic poisoning, comparable to lead or arsenic poisoning, is infrequent even among workers distinctly exposed to copper dusts or vapors. On the other hand, a local irritation from copper salts is well agreed on.

Copper carbonate is often pointed out as an irritant to the gastro-intestinal tract and less so to the pulmonary tract. The fibrosis found in copper miners is to be associated with silica and other minerals found with the copper. In the present instance it is proper to assume, in the absence of other causes of the disorder, that copper carbonate dust has been both inhaled and swallowed. Through its local action, the swallowed dust has induced inflammation of the stomach and intestinal tract. Usually diarrhea and vomiting accompany this state. All other manifestations mentioned in the query conform to this assumption. The absorption of the copper is neither affirmed nor denied. Persistent exposure is likely to produce chronic impairment. Ulcer formation is within reason. Sodium thiosulphate treatment is not recommended. The wearing of a suitable dust-proof mask is advocated. Since this worker may be more susceptible than usual, it may prove desirable to change occupations.

Elimination of exposure, may, in the absence of well established damage to the stomach and intestine, be expected to lead to betterment without treatment, or with the usual treatment for gastritis.

An extensive bibliography dealing with copper compounds is given by Huber, H. L.: *J. Pharm.* **11**:303, 1918.

METAL FUME FEVER

To the Editor:—Can you give me any information about "Oxweld," a welding flux for brass and similar alloys made by the Oxweld Acetylene Company, Chicago? I have a patient who complains of vertigo, faintness and general weakness following the welding of brass, which he has to do occasionally. Could these symptoms be caused by fumes from this flux? If so, what could be done to prevent them or protect the welder from the fumes?

R. C. HILL, M.D., York, Ala.

ANSWER.—This reply does not refer to any specific product. The condition described, if occupational, is that of "metal fume fever," and is due to the evaporation of metals by the high temperature of the oxyacetylene torch. Zinc, a constituent of the brass, is the most likely source of this condition. Its melting and boiling points are much lower than those of the copper in the brass. This disease state has such other names as "zinc chills," "brass chills," "brass founders' ague" and "brazier's ague." Commonly this disorder develops at night after work during the preceding day with molten metal. In addition to the manifestations mentioned there frequently exist profound chilling and insatiable thirst, followed on the next day by distaste for food. This occupational disease is prone to arise among workers irregularly exposed to metal fumes. Regular exposure leads to some degree of immunity, the nature of which is unknown.

No chronic form is known to exist, but the general health of such workers is, on the average, lower than that of metal workers as a group. The worker who is occasionally exposed may find protection in the wearing of a suitable mask. Unlike most dust or fume hazards, this particular one is practically obviated by filter types of masks. It is necessary that the filter pads or equivalent be cleaned or changed daily; otherwise, clogging takes place.

In addition to the chief probable hazard of metal fume fever, oxyacetylene welding provides an occasional hazard of carbon monoxide, hydrogen sulphide, arsenic or lead.

URTICARIA HIEMALIS

To the Editor:—A married white woman, aged 55, the mother of ten children, all living and all in good health, who has had no miscarriage and has passed the menopause without symptoms, developed an intense itching and burning of the hands and face, about five years ago, when they were exposed to the cold winter air. These symptoms passed off in the course of a few weeks without treatment. Now during the warm season she has a recurrence of the symptoms when, in the course of her household duties, it becomes necessary for her to put her hands in ordinary cold water. The symptoms are much more intensified. She cannot drink ice water, eat ice cream, or take anything cold without swelling of her lips, tongue or throat. She says this gives her a sense of suffocation. She had a mild attack of urticaria a few days before the onset of her present attack. I am wondering whether the whole thing may not be an allergic affair. If you can give me any information on the etiology and suggest treatment for this distressing condition you will have made one subscriber very grateful to you. Please omit name and address.

M.D., Kentucky.

ANSWER.—This is evidently a case of urticaria hiemalis, described by Duke in THE JOURNAL, July 5, 1924, under the title "Urticaria Caused Specifically by the Action of Physical Agents." The causation, no doubt, is sensitiveness to cold. The condition can be relieved partially or completely by the careful administration of ice rubs on the arms, legs and body. Treatment with ice should be started by exposing a relatively small area of the skin, such as one arm. By degrees the area can be increased until the entire body is rubbed with ice within a period of from two to six weeks. Tolerance gained in this way may be useful. The patient should not indulge in cold drinks or cold foods and should also avoid exposure to cold air and cold baths. The latter exposure is likely to cause a severe shock reaction if the skin area exposed is large enough. Such a reaction can be well treated with epinephrine. If possible, the patient should try to live in a warm climate, where accidental exposures to cold are less likely.

EPINEPHRINE IN SHOCK

To the Editor:—I have read your answer to my query on epinephrine in shock. In the first paragraph you deal with epinephrine essentially only "in acute cardiac conditions, associated with sudden dangerous drop in blood pressure," without any mention of shock but with possible implications. The question is whether epinephrine is advisable in such a condition. You rather imply that it is not. I think I agree. As one of the prime actions of epinephrine is in causing contraction of the arteries, I hold that, in any case of sudden drop of blood pressure, epinephrine in any dose would be distinctly contraindicated if the arteries are already contracted but might be indicated if arteries are dilated. A question arises whether arteries are always contracted in shock seen in surgical work, as in severe accidental trauma and after operations. I question whether arteries in different parts of the body react differently in shock, some, as those in abdomen and brain, dilating while others, as in bodily extremities, contract. Are there any reliable data? There have been plenty of assumptions. I think it will be found that digitalis given in any way is too slow for shock even if the vasoconstricting action were not objectionable in case arteries are contracted, for digitalis does contract arteries in certain conditions, especially in disturbed nervous conditions, even to the death of the patient. Caffeine sodiobenzoate is enjoying a period of use as a cardiac stimulant, but are there any good supporting data? I wonder how vasodilators would be in cases of shock with contracted arteries. I consider a state of contraction or dilatation of the arteries a necessarily prime consideration in treating any ailment. It is much ignored. Unfortunately, attention is riveted on blood pressure, which is of even secondary consideration to tension (contraction or relaxation) of the arteries. At present I see no benefit in drugs in shock with contracted arteries, unless possibly vasodilators continuously used are beneficial.

GEORGE E. BARNES, M.D., Herkimer, N. Y.

ANSWER.—The height of the blood pressure is important because it is the best criterion to the degree of surgical shock, which may be due to a number of factors.

A fatal termination may result with the blood pressure remaining long below 60 mm. of mercury. Under such conditions epinephrine or any other vasoconstrictor or stimulant may raise the blood pressure and with proper doses maintain it until the regulatory mechanism of the body has recovered. The Trendelenburg position is of value. In the meantime the primary factors of shock must be determined, if possible, and

treated. If the shock is due to a cardiac dilatation, heart stimulants are indicated. If it is due to a loss of fluids, hemorrhage or toxemia, fluids or a blood transfusion should be given. Ephedrine is of value as a prophylactic against shock by maintaining the blood pressure, but it is of little value after the blood pressure has dropped. There is definite value in digitalis and caffeine with cardiac weakness.

Vasodilators are contraindicated in shock, except that which may occur with a spasm or narrowing of the coronary blood vessels of the heart.

OCCUPATIONAL DISEASE OF CORNET PLAYERS

To the Editor:—Could you give me some information about silver plating. To be specific, my patient is a cornet player. Apparently the silver plating on his instrument is responsible for very dry, fissured lips. Please omit name.

M.D., Massachusetts.

ANSWER.—The occupational diseases of players of wind instruments are ordinarily of mechanical rather than of chemical origin. Reed instruments, in particular, lead to cornification of the lips. Cell proliferation from long repeated pressure on the lips is the probable source of the condition mentioned in the query, if that condition is occupational in origin.

Metal plating of objects much in contact with the body, such as spectacle frames, has long been regarded by some as the source of the irritation. Without denying this, one might direct attention to the part played by friction. In THE JOURNAL, March 7, 1932, page 771, E. S. Lain discussed nickel dermatitis in wearers of nickel plated spectacle frames. Much there stated is related to contact with plated musical instruments. Other types of spectacles give rise to dermatoses, thus emphasizing the mechanical influence.

GINGIVITIS

To the Editor:—What information regarding diagnosis and treatment can you give me about the following case: A married woman, aged 40, without children, tall, sallow, twelve years ago following influenza had a slight swelling of the gums in the lower jaw only, in and around the molars and also the incisors. It was very tender and painful. The swelling rapidly disappeared but tenderness has remained. This is now almost wholly limited to the superior gum surface between all the teeth. She has been under the observation of the best dentists in the country without a diagnosis being given and without relief. One good tooth was purposely removed to see whether the adjoining gum tissue caused the pain, without result. The patient's other marked symptom is intractable insomnia (not caused by the pain). On account of the insomnia and the continuous pain, the patient is run down and now nervous. She is determied, if not relieved of the pain, to have all the teeth removed, in the hope of relief. The gums and teeth macroscopically are in perfect condition. Rontgenograms show normal conditions. The patient has severe dysmenorrhea. Cultures and examination of the mouth are as follows: The reaction of the saliva is neutral. Smears from between the teeth yield staphylococci and Micrococcus catarrhalis. Vincent's organisms are absent. Cultures showed staphylococci, streptococci and Micrococcus catarrhalis. Skin tests for allergic reactions are negative.

M.D., New Mexico.

ANSWER.—In such cases it is impossible to offer a satisfactory diagnosis without study of the patient and of the roentgenograms. The history as given is incomplete and therefore unsatisfactory.

Since the patient is supposed to have been under the observation of the best dentists, she is probably not suffering from any common dental ailment. The more common lesions of the mouth are quite regularly diagnosed. Early changes are too frequently overlooked.

During periods of illness it is common for people to develop trouble with the soft tissues investing the teeth. All ill patients naturally suffer from lowered resistance, and almost all of them practice poorer mouth hygiene during illness. This, no doubt, was true in this instance. An acute gingivitis developed and during this period the gums were painful and swollen. Within a brief period this acute stage subsided and resolved itself into one of three possible conditions:

1. The acute gingivitis developed into a low grade chronic gingivitis, with probably no marked redness, no swelling and no pockets. Therefore apparently no great amount of bone resorption has been observed. This may be deduced from the statement pertaining to roentgen diagnosis.

2. In the event that the low grade gingivitis does not exist, it is probable that the gums were sufficiently damaged to leave very blunted gingivae. These blunted tissues, while not sufficiently damaged during mastication to produce marked symptoms, nevertheless may be sufficiently traumatized to produce a lingering tenderness.

3. The teeth may have drifted sufficiently to open contacts or at least produce loose contacts. These may permit sufficient food to pack between the teeth to account for the irritation.

In any event the patient should be taught to brush the gums thoroughly twice a day. For a period of three or four weeks, an 8 per cent zinc chloride solution should be applied to the interproximal spaces once a day with a tooth pick wrapped with a small amount of cotton.

INJECTION METHOD IN HERNIA

To the Editor:—Recently I have seen cases of inguinal hernia which had apparently been treated by some injection method, possibly designed to sclerose the opening so as to prevent the extrusion of the abdominal contents. Reports of these patients are that they are better and that the hernias do not come down as they formerly did. One man had eight injections and was apparently relieved until one afternoon, when he fainted at the wheel of an automobile and crashed into the curb. I saw him at the site of the accident, in a state of shock, and had him removed to the hospital, where he had completely recovered the following morning. I was wondering whether the medicine injected might possibly have been a solution of quinine and urea hydrochloride, and as a result of his having been given too big a dose on the day in question he had a quinine reaction shortly after having left the doctor's office where the work had been done, fainted, and piled up on the curb. The method is practiced by a traveling irregular who frequents our town and for that reason alone I am inclined to view it askance. Do you know anything about the method or the possible drug used, and the results? Please omit name and address.

M.D., Colorado.

ANSWER.—Injections of various substances, especially paraffin, have been used from time to time. Probably in some instances relief has been obtained, particularly with an indirect inguinal hernia with a small, narrow sac. It is known that many hernias of this type are cured in infants by the use of a truss or even without any treatment.

Results from injections have not justified their use. There is always difficulty in injecting anything in the proper place in order to occlude the sac. In addition, adhesions forming round the hernia make it much more difficult to repair.

No good results could be expected in large indirect inguinal, in direct inguinal, or in femoral hernias from any injection method.

At present no sclerosing substance or any injection method is recognized as good practice.

Under local or gas anesthesia the discomfort and dangers of operation by a skilful surgeon are so slight that it may be undergone by practically any one, including the young and the aged, if symptoms justify intervention.

No reports have been observed following the use of quinine and urea hydrochloride.

The systemic reaction following any injection should always be considered in ambulatory patients, especially with drugs for which there may be an idiosyncrasy.

REMOVAL OF BIRTHMARKS

To the Editor:—I have an infant patient, 1 year old, who has a birth mark in the center of the forehead near the hair line. It is the size of a dime about one-eighth inch thick. Would it be advisable to make an oval incision and remove it? What are the usual results if it is removed surgically?

B. H. S. ANGEAR, M.D., Sublette, Ill.

ANSWER.—Generally speaking, surgical removal of birthmarks does not give as good cosmetic results as other methods. The great difference in the various forms of birthmark make it impossible to form an opinion of the treatment to be advised in the case mentioned without more information.

BURNS FROM HYDROFLUORIC ACID

To the Editor:—In THE JOURNAL, September 3, there appeared a question concerning burns with hydrofluoric acid. Each year several cases of such burns occur among students and laboratory workers at the University of Wisconsin.

While it seems quite unusual that a burn on the anterior surface of the right forearm should lead to changes in the nails of that hand, it should be borne in mind that an individual working with this acid may have suffered damage to the nails and adjacent tissues prior to or accompanying the burn on the arm. Probably no chemical agent other than hydrofluoric acid that I have seen will produce more painful injuries to the nails. The pain seems to increase rather than to decrease for many hours following exposure to the acid. One patient who had a burn on only one finger was in such pain that it was necessary to admit her to the infirmary for three or four days of intensive treatment, during which time mild sedatives were required.

In all cases in which the nails are affected there seems to be great distortion of the nail, which often becomes loose and is sometimes entirely lost. After having tried many remedies, I have found that the only one giving relief is the use of wet compresses soaked in equal parts of saturated boric acid solution and 70 per cent alcohol. These compresses are applied continuously for the first forty-eight hours and at intervals thereafter if required. Elevation of the part and the use of heat, when pain is intense, along with liberal doses of analgesics and sodium bromide if the patient is made extremely nervous and uncomfortable, are indicated.

CHARLES E. LYGHT, M.D., Madison, Wis.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Milwaukee, June 12. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *General, oral and clinical.* Los Angeles, Dec. 7. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Milwaukee, June 12. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

CALIFORNIA: *Reciprocity.* Los Angeles and San Francisco, Dec. 14. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, Jan. 3. Sec., Dr. William Whitridge Williams, 422 State Office Bldg., Denver.

DELAWARE: Wilmington, Dec. 13-15. Sec., Dr. Harold L. Springer, 1013 Washington St., Wilmington.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 30. Sec., Dr. W. C. Fowler, 203 District Bldg., Washington.

IOWA: Des Moines, Dec. 6-8. Dir., Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, Dec. 13-14. Sec., Dr. C. H. Ewing, Larned.

KENTUCKY: Louisville, Dec. 6-8. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

MARYLAND: *Regular.* Baltimore, Dec. 13-16. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 13-14. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 3-4. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

MISSISSIPPI: *Reciprocity.* Jackson, Dec. 12. Sec., Dr. Felix J. Underwood, Jackson.

NEBRASKA: Lincoln, Nov. 29-30. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NORTH CAROLINA: Raleigh, Dec. 5. Sec., Dr. B. J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 3-6. Sec., Dr. G. M. Williamson, Grand Forks.

OHIO: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus.

OREGON: Portland, Jan. 3-5. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

RHODE ISLAND: Providence, Jan. 5-6. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

VIRGINIA: Richmond, Dec. 7-9. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 17. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Regular.* Madison, Jan. 10-12. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

Indiana June Report

Dr. William R. Davidson, secretary, Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, June 21-23, 1932. The examination covered 16 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and twenty candidates were examined, 119 of whom passed and one failed. The following colleges were represented:

PASSED — College	Year Grad.	Number Passed
Loyola University School of Medicine	(1931), (1932, 4)*	5
Northwestern University Med. School	(1923), (1931), (1932)	3
Rush Medical College	(1928), (1930), (1931), (1932, 2)	5
Indiana University School of Medicine	(1931), (1932, 89)	90
University of Louisville School of Medicine	(1931), (1932)	2
Harvard University Medical School	(1932)	1
St. Louis University School of Medicine	(1932)	1
Creighton University School of Medicine	(1931, 2)	2
University of Naples Faculty of Medicine and Surgery	(1928)†	1
Osteopaths		9

FAILED — College	Year Grad.	Number Failed
Indiana University School of Medicine	(1931)	1

*Two of these applicants have completed their medical course and will receive their M.D. degree and Indiana license on completion of an internship.

†Verification of graduation in process.

South Dakota January Report

Dr. H. R. Kenaston, director, Division of Medical Licensure, South Dakota State Board of Health, reports the oral, written and practical examination held in Pierre, Jan. 19-20, 1932. The examination covered 15 subjects and included 105 questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. Nine physicians were licensed by reciprocity with other states. The following colleges were represented:

PASSED — College	Year Grad.	Per Cent
Rush Medical College	(1931)	89.3
University of Minnesota Medical School	(1931)	89.1

LICENSED BY RECIPROCITY — College	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1929)	Arkansas
Northwestern University Medical School	(1924)	Mississippi
State University of Iowa College of Medicine	(1926)	Iowa
University of Minnesota College of Med. and Surg.	(1905)	Minnesota
University of Minnesota Medical School	(1931)	Minnesota
Creighton University School of Medicine	(1928), (1929)	Nebraska, Kansas
University of Cincinnati College of Medicine	(1924)	Minnesota
University of Geneva Faculty of Medicine	(1923)	Minnesota

Book Notices

Orthopedics in Childhood. By William L. Sneed, M.D., Attending Surgeon, Hospital for the Relief of the Ruptured and Crippled. Everyday Practice Series. Edited by Harlow Brooks, M.D. Leather. Price, $5. Pp. 318, with 145 illustrations. Philadelphia & London: J. B. Lippincott Company, 1931.

This book was written primarily for pediatricians, general practitioners and those in charge of children. The illustrations on the orthopedic examination of the child are good. The author states that a well fitting, well molded plaster bandage should be applied, with no wrinkles in the plaster, next to the sheet wadding. This is an accomplishment. If he can apply plaster next to sheet wadding without producing wrinkles, he is more clever than most orthopedic surgeons, who find it necessary to put a roll of bandage material over the sheet wadding before plaster is applied. The chapter on physical therapy in pediatrics is by K. G. Hansen, an authority on the subject. A discussion of subdeltoid bursitis seems to be out of place in a book on orthopedics in childhood. Figure 76 is the reproduction of a photograph of the hand of a dentist and may be left out of a book on orthopedics in childhood. On page 201 the author states that famous investigators are advocating therapeutic serums and various procedures for obtaining blood cultures, claiming that the organism can be found in as large a proportion of cases as from 75 to 90 per cent. He should be advised that therapeutic serums are not in common usage, but vaccines are. There are many typographic errors, some of which undoubtedly should be charged to the author and the proofreader. Figures 27 and 28 do not illustrate what the legends indicate. It is regrettable that the word "tubercular" is used frequently instead of "tuberculous." On page 46, fourth line from the bottom, the word "valgus" should be "varus." Figure 25, a roentgenogram, is not of value from the teaching standpoint. Figure 39 is a roentgenogram supposed to illustrate acute right femoral epiphysitis in a baby. It is poor and uninstructive. Figure 41 deserves the same criticism and is of no value from the teaching standpoint. The best illustrations are those borrowed from other writers. Figure 78 is worthless, and so is figure 79, which illustrates a patient 22 years old, which should not be in a book on tuberculosis in children. Figure 83 is a roentgenogram supposed to illustrate congenital syphilis of the left hip. It is worthless from the standpoint of diagnostic roentgenography. Figure 89 also is worthless. In a roentgenogram of a child supposed to have epiphysitis of the left os calcis, there is not sufficient difference between the right and left to prove the diagnosis. No doubt the child had epiphysitis of the left os calcis, but the roentgenogram does not prove it. On page 68 the author states that the internal semilunar cartilage of the knee is dislocated three or four times as frequently as the external. This is not the generally accepted proportion and emphasizes incorrectly the frequency of dislocation of the external semilunar cartilage. The author should know that Colles is not spelled Colle's, and that Perthes is correct and not Perthe's.

L'hérédo-syphilis; clinique et thérapeutique. Par le Dr Jean Hutinel et le Dr Alice Linossier-Ardoin. Préface du Professeur V. Hutinel. Paper. Price, 35 francs. Pp. 302, with 7 plates. Paris: Gauthier-Villars & Cie, 1932.

This little volume, a clinical compend on prenatal syphilis, presents in curiously orthodox and quite complete fashion the generally accepted facts regarding prenatal syphilis. The French pediatric point of view is conspicuous by its absence or is toned down to unobtrusiveness. Only in the preface does the elder Hutinel indulge in a few brief lines on syphilis as a diathesis and a brief reference to the controversy between Latin

and Anglo-German syphilology on the extension of the influence of syphilis on growth and development beyond the second generation. In the body of the text it is distinctly disappointing to find "syphilis hereditaire larvée" dismissed with two or three paragraphs. Undoubtedly the large intuitional element, which many believe has been overextended in diagnosis by the French school, explains the inability to be more concrete in definition. Examination of the child discloses only possibilities and probabilities. It is on the striking and immediate effect of treatment for syphilis that the French clinician bases his diagnosis of a syphilitic influence in the background of a wide variety of disease complexes. Eight pages are devoted to glandular dystrophies. Completeness, and, indeed, the work is remarkably complete, has been obtained through a didacticism of statement and an absence of pros and cons and discussions of the literature which fit the work essentially for the practitioner, though the specialist and the pediatrician will find many frequently overlooked points in diagnosis and treatment at least briefly mentioned. There are several good illustrations, chiefly of bone lesions.

Die unsichtbare Strahlung der Lebewesen (mitogenetische oder Organismenstrahlung). Von Dr. Walter Stempell, Professor der Zoologie, vergleichenden Anatomie und vergleichenden Physiologie, an der Westfälischen Wilhelms-Universität, Münster i. W. Paper. Price, 7.50 marks. Pp. 108, with 57 illustrations. Jena: Gustav Fischer, 1932.

The author seeks to shed light on the question of organismal radiation from all conceivable angles and to give a full and easily understandable yet concise presentation of the whole of this difficult subject on the basis of his own and other authors' long continued and highly refined researches. An historical survey is followed by a consideration of the sources of the invisible rays and methods for demonstrating them by detectors. They were termed "mitogenetic" by Gurwitsch, "organismal" by Stempell. Detailed descriptions of the Gurwitsch, Stempell and Rejewsky effects and the technic of each are given, as also of Gesenius' metabolism experiments, hydrogen peroxide experiments and photographic demonstrations. The origin, nature and mechanism of the rays, their relation to active factors in the life of the organisms, and Gurwitsch's field theory are discussed.

Stempell concludes that the most diversified chemical changes are attended by an ultraviolet radiation of usually feeble intensity (from 10 to 2,000 quanta per centimeter second), which is demonstrable by three totally different methods: the biologic Gurwitsch effect, the chemicocolloidal Stempell effect and the physical Rajewsky effect. This radiation accelerates cell segmentation and proliferation (or inhibits these processes under prolonged action), influences fermentative and oxidative processes, and induces a secondary radiation which serves to propagate the evolved radiation in the organism. The velocity of propagation is from 15 to 20 meters per second in the frog's nerve and in onion root. The secondary radiation, wherever produced, manifests itself by a "coruscation" lasting about $^1/_{900}$ second. This quantum-like organismal radiation is probably rhythmic. The sources of the invisible rays of tissues which have so far been studied closely are oxidation, proteolysis and glycolysis. The radiations from these sources show specific spectrums in the short wave violet (around 2,000 angstroms). It is considered certain that other processes also yield these rays and that other ultraviolet rays of greater wavelength are likewise mitogenetically active. Though itself nonspecific, the radiation seems related to purely chemical factors of a specific character by antagonistic reciprocal action. These chemical factors are demonstrable biologically and also by the Stempell effect. Both the radiational and the chemical factors have a decisive influence in metabolism, metamorphosis and energy change as well as in the interrelations between these.

Stempell stresses the practical applications of organismal radiation, particularly in medicine, in which, for instance, absence of blood radiation permits of early diagnosis in carcinoma and other diseases. Further, radiotherapy and the as yet unsatisfactory theory regarding the origin, mechanism and nature of ferments, hormones and vitamins should receive much help from these researches, particularly if the reciprocal action between radiation and chemical factors could be elucidated. Fundamental biologic problems, such as propagation of irritability conditions and morphogenesis, should also benefit by research on radiation. Outside the biologic field, Stempell believes that an ultraviolet radiation which attends diverse chemical reactions and which is demonstrable by sensitive detectors constitutes a fact which neither chemists nor physicists can ignore as it is intimately related to the energetic side of chemical reactions.

The book is richly furnished with plates, diagrams and tables illustrating the technic and results of the experimental procedures and with an exhaustive bibliography. It should form a valuable addition to the existing literature on this as yet obscure but fascinating subject.

La diagnosi biologica dell'echinococcosi. Da Luigi Pinelli, assistente della clinica medica della R. Università di Sassari diretta dal Prof. Giuseppe Sabatini. Con prefazione del Prof. Giuseppe Sabatini. Paper. Price, 45 lire. Pp. 341. Sassari: Prem. G. Gallizzi, 1932.

The comparative rarity in North America of echinococcosis, which is quite prevalent in Europe, Australia and South, America, probably prevents practitioners in this country from appreciating the difficulties surrounding early diagnosis. Pinelli has presented in this volume the biologic methods that have been found of diagnostic value. Each method has been evaluated in a sufficient number of cases, and clear, minute details are given for the technic of all tests. These tests can be divided into three classes: 1. Changes in the blood picture. 2. Seroreactions based on the presence in the circulating plasma of products elaborated by the parasitic cyst. In this class are included complement fixation, Abderhalden reaction, tryptic index of serum, and enzymoreaction of Sivori and Rebaudi. 3. Various intradermal and subcutaneous and ophthalmic tests performed with antigenic materials derived from the parasites and hydatid fluid. The author's intradermal reaction with filtered hydatid fluid freed from protein is certainly worthy of serious consideration, since he has found it positive in 86 per cent of all cases studied. Next in importance is a persistent eosinophilia of 10 per cent or over. The higher the value of eosinophilia, the greater the diagnostic indication. It is noteworthy, in this connection, to consider that the inner walls of the hydatid cyst is richly infiltrated by eosinophils, a finding that lends support to the author's contention that the toxic products of the parasites are neutralized by the eosinophils. The complement fixation reaction has been found to be erratic and is not recommended. It shows positive results constantly only in cases of degeneration of the cyst or after its rupture or puncture, which may favor some absorption of the fluid. The work is completed by a carefully compiled bibliography, the value of which could have been considerably enhanced if the articles had been arranged under the heading of the various biologic reactions rather than by authors alphabetically.

Die Anopheles von Niederländisch-Ostindien. Von Prof. Dr. N. H. Swellengrebel, Professor d. Zoologie a. d. Universität Amsterdam, und Prof. Dr. Ernst Rodenwaldt, Inspekteur d. Volksgesundheitsdienstes f. Ostjava. Herausgegeben mit Hilfe des Königlichen Kolonial-Instituts in Amsterdam. Third edition of Prof. Dr. N. H. Swellengrebel's "De Anophelinen van Nederlandsch Oost-Indië." Paper. Price, 13 marks. Pp. 242, with 92 illustrations. Jena: Gustav Fischer, 1932.

In this edition a general part (about one fourth of the book) precedes the systematic part. The authors, while pointing to the great advances in knowledge concerning the epidemiology of malaria, draw special attention to the unsolved problems, some of these being (1) the presence in certain areas of malarial vectors without any tendency of the disease to spread, (2) sudden epidemics in regions where previously little infection existed, (3) the occurrence of malaria without the finding of anopheles, and (4) the best methods of control. They advocate throughout a thorough study of each locality to determine what species and varieties of Anopheles exist there, what their habits are, what their relation to malaria is, and how the more dangerous ones may be controlled. While subscribing to the tenet that a systematic and biologic analysis of the anopheline fauna of a malarial region is essential to an understanding of the epidemiology of the disease, as has been established by earlier investigators (especially Watson in the Federated Malay States), the authors show how their studies in the Dutch East Indies have led to a certain amount of disappointment. This is true because of the finding that many species of Anopheles do not have as definite circumscribed breeding places or are not as specific in their biting habits as it had previously

appeared. As examples, Anopheles maculatus breeds not only in the mountain waters of the highlands but also in lakes, swamps, and even in vegetation-free water basins; and Anopheles aconitus breeds in dirty lakes as well as in swamps and irrigation conduits. Moreover, their studies have revealed that distinctions between innocuous and dangerous species cannot always be sharply drawn, since the species ordinarily considered innocuous may suddenly become the cause of an epidemic, and the converse. No explanation for this phenomenon is offered, but it probably is to be explained by the assumption that susceptibility to the malarial parasites of Anopheles behaves as a mendelian character, as has been proved to be the case by Huff (*J. Prev. Med.* **5**:249 [July] 1931) in Culex and avian malaria. The authors recognize the importance of a careful species analysis for discovering intraspecific races which may behave differently in their malaria-carrying capacity. Such an analysis of all important species of Anopheles is extremely difficult in the Dutch East Indies and has not yet been carried out. They recommend the splitting of species even in cases in which there may be doubt as to the epidemiologic importance of the subspecies and varieties, since it is easier later to understand a group as homologous to another than it is to split up an older group on which much good work may already have been done. A pertinent example is the failure to recognize the variety moluccensis of Anopheles punctulatus, a variety that is a much more efficient vector of malaria than the type, and the inclusion of observations on this variety with those made on the rest of the species. The authors are emphatic in their exhortation to avoid generalizations in malarial epidemiology.

The general discussion contains sections on adult and larval structure; classification (with subgeneric keys); keys for the identification of species of females, males and larvae of Dutch East Indian Anopheles; geographic distribution of the species found in the Dutch East Indian Archipelago; general remarks on the value of "species" of Anopheles; the dangerousness of Anopheles, and practical hints on collecting and mounting. Of the species found in the Dutch East Indies, twenty-two (with fifteen varieties) are of Asiatic origin, two (with one variety) are of a doubtful intermediate position, and seven (with six varieties) are of undoubted Australian origin. Nine of the Asiatic species (with three varieties) have immigrated to the Australian part of the archipelago. Summaries of the natural infection rates of those species on which enough work has been done to make possible significant average percentages classify them as follows: (1) species with rates of less than 1 per cent, Anopheles barbirostris-barbirostris, A. vagus, A. subpictus, A. fuliginosus-fuliginosus, A. punctulatus-tesselatus, and A. kochi; (2) species with rates of from 1 to 5 per cent, A. hyrcanus, A. umbrosus, A. aconitus, A. maculatus, A. leukosphyrus and A. punctulatus-punctulatus; (3) species with rates above 5 per cent, A. ludlowi-sundaica and A. punctulatus-punctulatus-moluccensis.

The plates show in clear line drawings the structures of diagnostic importance for the adults and larvae of twenty-seven species and many of their varieties.

Blind Flight in Theory and Practice. By William C. Ocker, Major, Air Corps, U. S. Army, and Carl J. Crane, B.M.E., First Lieutenant, Air Corps, U. S. Army. Cloth. Price, $3. Pp. 200, with 111 illustrations. San Antonio, Texas: Naylor Printing Company, 1932.

Until recently, physicians have dealt with the human being living and working on or underneath the earth's surface. With the advent of aviation, problems arose as the result of activity in a new environment. Mechanical and physical questions presented themselves. Man's ability for orientation in this new sphere was involved. Unaided by mechanical instruments, blind flying was impossible and as a rule resulted in a crash. Without mechanical guides and aids, aviation is impossible in fog, in clouds, over large bodies of water or in the dark. A pilot loses all sense of direction, position, speed and space whenever he is deprived of the horizon, heavenly bodies or some other mark that enables him to maintain spatial orientation. Through investigation, research, experiments and application, this obstacle to aviation has been practically surmounted. Refinements will of course ensue, but fundamental principles are quite well established. By means of the turn and bank indicator, climb indicator, artificial horizon, directional gyro, integrator and the radio, in part or in groups, spatial orientation of the pilot is now possible. Blind flying can be done in fact. Aviation is made safer. Weather becomes less of a detention factor. The authors have related the theories involved and have set forth the practical application. Every one concerned with aviation and avigation will gain valuable assistance from this dependable contribution.

Über die Schädelperkussion. Von Prof. Dr. Ladislaus Benedek, Direktor der psychiatrischen und Nervenklinik der Universität Debreczen. Paper. Price, 6 marks. Pp. 112, with 64 illustrations. Berlin: S. Karger, 1932.

The author presents three refined methods of percussion of the head, requiring special apparatus. In two, electrical methods are used for producing and for intensifying the percussion sounds. By means of these methods the author has carried out an intensive investigation of the variations of sounds produced in both normal and pathologic cases. Variations in the percussion note obtained in normal skulls refer chiefly to regional differences in thickness. The thickness of the skull is greatest in the supra-orbital and mastoid regions, next over the interparietal suture. The note is dull in these regions. The most important pathologic state in which changes in the percussion sounds are produced is increased intracranial pressure. With the thinning of the skull in this condition, a tendency to tympany is noted. Similar results are produced likewise in hydrocephalus and senile osteoporosis. Impairment of percussion may be caused by processes producing bone thickening and by underlying tumors. As a further procedure, the author reports a group of patients studied by percussion after the injection of air by ventricular and lumbar routes. Accurate localization of the disease processes by percussion in the hands of the author were thus possible, when at times ordinary clinical methods failed.

The Third Pandemic of Plague in Egypt: Historical, Statistical and Epidemiological Remarks on the First Thirty-Two Years of Its Prevalence. By A. W. Wakil, M.B., Ch.B., Dip. Hyg., Asst. Professor of Hygiene and Preventive Medicine, Faculty of Medicine, Cairo. The Egyptian University, The Faculty of Medicine, Publication No. 3. Paper. Pp. 169, with illustrations. Cairo: Egyptian University, 1932.

In the foreword the author points out that the plague reappeared in Egypt thirty-two years ago, after an absence of half a century. The primary purpose of the present report is to review the history and causes of its disappearance and reintroduction. Chapter I gives a short historical survey of plague which points out the probable antiquity of the disease in Egypt, although the ancient records are obviously faulty. Satisfactory knowledge can be obtained from the sixth century, and since that time there have been three great pandemics: the "Plague of Justinian" 542 A. D., the second pandemic, which reached its zenith in the fourteenth century (the "black death") and the third pandemic, which probably spread from China toward the end of the nineteenth century and which is still continuing. Chapter II deals with the third pandemic, which was discovered in Alexandria in 1899. The author discusses in detail the origin and character of the outbreak. In chapter III the advance of the pandemic is considered. Chapter IV consists of a compilation and discussion of the statistical data for the thirty-two years of the third pandemic in Egypt. A large portion of this is devoted to morbidity and mortality statistics. In interpreting these the author gives a refreshing note of caution: "The registration of vital statistics in Egypt, as in several other countries, is far from being trusted as exposing the real state of affairs." Besides morbidity and mortality statistics the author has accumulated a wealth of figures on the types of plague, seasonal variation, and various data on rats and fleas. The final chapter is devoted to remarks on the plague in Cairo and Alexandria. Cairo has enjoyed almost an immunity from the disease, there being from 1899 to 1930 only sixteen cases and eleven deaths, all of which were probably imported cases. No such immunity existed in many previous outbreaks. There is no difference in the type of rat or of flea to account for this disappearance of plague in Cairo. The author thinks it possible that the explanation lies in the great increase of weasels since the forties of the last century, which have kept the rat population under control. It is impossible to do justice to the present report in a short review, but all investigators interested in plague, and particularly epidemiologists, will find many facts and discussions of interest compressed into a compact report. There is a short bibliography.

Medicolegal

Religious Freedom and the Treatment of the Sick

(State v. Verbon (Wash.), 8 P. (2d) 1083)

Verbon held a certificate of appointment to teach in the Church of the Illumination and at the time of the offense charged was acting as a preacher for a church in Seattle. He had been licensed in Oregon to practice drugless therapeutics. After he removed to Washington he tried there to get a license as a drugless healer, but failed because he could not pass the required basic science examination. He was called in by the wife of a patient suffering from cancer, who testified that she understood that he was a doctor, acting in the capacity of a physician and not in a religious capacity. Two trained nurses in attendance on the patient gave testimony of similar purport. They kept the usual charts showing the patient's condition and gave medicines directed by Verbon. Verbon gave local physical treatments and furnished and administered drugs, for which he was paid. He was convicted of practicing medicine without a license and appealed to the Supreme Court of Washington.

The fourth amendment to the constitution of the state of Washington provides that "absolute freedom of conscience in all matters of religious sentiment, belief and worship shall be guaranteed to every individual, and no one shall be molested or be disturbed in person or property on account of religion; but the liberty of conscience hereby secured shall not be so construed as to excuse acts of licentiousness or justify practices inconsistent with the peace and safety of the state." Verbon claimed that the acts done by him were permissible under this provision of the constitution; that is, that he had been practicing his religious belief, not practicing medicine. He introduced evidence to show that "it is one of the beliefs and teachings of the church that the pastor should aid and assist as [sic] a matter of diet and health, and christian obligation to his church, those that are sick or in such abnormal physical condition that they need assistance." Verbon claimed that the trial court erred in sustaining an objection to his offer of proof concerning the teachings of the Church of the Illumination as regards diet and health. The prosecution, however, the Supreme Court pointed out, neither denied or attempted to deny such teachings. What the state disputed was Verbon's good faith and that the substances administered by him were, as he claimed, not drugs but food. Evidence with respect to the teachings of Verbon's church was in any event immaterial, because the issue concerned, not what the church taught, but rather the kind of business in which Verbon was engaged.

Verbon contended that the prosecution violated his rights under the constitutional amendment with reference to religious freedom, and he claimed protection under the exemption in the medical practice act which provides that the act shall not be construed to apply to or interfere in any way with the practice of religion or any kind of treatment by prayer. The exemption stated in the statute, said the Supreme Court, is only a recognition of the provision in the constitution with reference to the same matter. In construing and applying the constitutional provision with respect to religious freedom, sight must not be lost of the difference between the exercise of religious belief and the practice of medicine. The enforcement of reasonable and necessary regulations in the practice of medicine must not be taken to be violative of this provision of the constitution. The practice of prescribing and administering drugs must be left to those whose qualifications and training, according to the standards fixed by the statute, prepare them for that service. The Supreme Court cited with approval the decision of the Court of Appeals of New York in *People* v. *Vogelgesang*, 221 N. Y. 290, 116 N. E. 977:

> The statute prohibits the practice of medicine without a license, but excepts from its prohibition "the practice of the religious tenets of any church." Public Health Law (Consol. Laws, c. 45) Sec. 173. We held in *People* v. *Cole*, 219 N. Y. 98, 113 N. E. 790 [L. R. A. 1917C, 816], that the exception protected the practitioners of Christian Science, who taught as part of their religion the healing power of mind. Even then we said that there were times when the question of their good faith must be submitted to a jury. . . . The law, in its protection of believers, has other cures in mind. The tenets to which it accords freedom, alike of practice and of profession, are not merely the tenets, but the *religious* tenets, of a church. The profession and practice of the religion must be itself the cure. The sufferer's mind must be brought into submission to the infinite mind, and in this must be the healing. The operation of the power of spirit must be, not indirect and remote, but direct and immediate. If that were not so, a body of men who claimed divine inspiration might prescribe drugs and perform surgical operations under cover of the law. While the healer inculcates the faith of the church as a method of healing, he is immune. When he goes beyond that, puts his spiritual agencies aside, and takes up the agencies of the flesh, his immunity ceases. He is then competing with physicians on their own ground, using the same instrumentalities, and arrogating to himself the right to pursue the same methods, without the same training.

To the same effect, said the court, is the decision of the Supreme Court of the United States in *Davis* v. *Beason*, 133 U. S. 333, 10 S. Ct. 299, 33 L. Ed. 637, that "however free the exercise of religion may be, it must be subordinate to the criminal laws of the country, passed with reference to actions regarded by general consent as properly the subjects of punitive legislation."

The conviction of Verbon was affirmed.

Evidence: Expert Testimony as to Medical Fees.—To remedy disfigurement resulting from an injury received in an automobile accident, the plaintiff submitted to a plastic operation in New York City. She sued the persons responsible for the accident, in Connecticut, where she sought to recover damages, including the fee of the plastic surgeon. He testified that his fee was a reasonable charge in New York City for such an operation as he performed. The defendant called a local physician and attempted to qualify him as an expert. The proffered witness testified that he had done some plastic surgery, but none of the type involved in this case, and that he had no knowledge of the fees charged by New York City physicians for such plastic surgery or of proper fees for it. The trial court ruled, on objection by plaintiff, that the witness had not been shown to be qualified to express an opinion as to the reasonableness of the charge for plastic surgery done in New York City. In this, said the Supreme Court of Errors of Connecticut, there was no error. The determination of the qualifications of an expert witness is largely a matter for the discretion of the trial court.—*Stressman v. Vitiello (Conn.)*, 158 A. 879.

Workmen's Compensation Acts: Compensability of Tularemia.—Tularemia, said the Court of Appeals of Kentucky, contracted while skinning and dressing rabbits in the course of employment, is the natural and direct result of traumatic injury by accident, within the meaning of the workmen's compensation act of Kentucky and is compensable under that act. The act provides that personal injury by accident, as defined by the act, shall not include diseases, *except where the disease is the natural and direct result of traumatic injury by accident.* Among the definitions of "trauma" given by Webster is "a wound or injury directly produced by causes external to the body." This does not limit the scope and meaning of the word to injuries produced by physical force, such as a blow, a current of electricity, or other forms of power, vigor, violence or energy as commonly understood. The word may be as consistently construed to include any independent influence or cause external to the body, coming into direct contact with its physical structures and causing injury to them.—*Great Atlantic & Pacific Tea Co., v. Sexton (Ky.), 46 S. W. (2d) 87.*

Society Proceedings

COMING MEETINGS

American Society for the Study of Disorders of Speech, St. Louis, November 25-26. Dr. Samuel D. Robbins, 419 Boylston Street, Boston, Secretary.

Pacific Coast Society of Obstetrics and Gynecology, Los Angeles, December 8-10. Dr. Clarence A. DePuy, 230 Grand Avenue, Oakland, Calif., Secretary.

Porto Rico, Medical Association of, San Juan, December 9-11. Dr. P. Morales Otero, 12 O'Donell Street, San Juan, Secretary.

Radiological Society of North America, Atlantic City, November 28-December 2. Dr. Donald S. Childs, Medical Arts Building, Syracuse, New York, Secretary.

Society for the Study of Asthma and Allied Conditions, New York, Dec. 10. Dr. W. C. Spain, 116 East 53d Street, New York, Secretary.

Society of American Bacteriologists, Ann Arbor, Mich., December 28-30. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Surgical Association, Miami, Fla., December 13-15. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Madison, Wis., December 9-10. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

44: 265-484 (Aug.) 1932

*Function of Liver in Scarlet Fever. S. van Creveld, Amsterdam, Holland.—p. 265.
*Tonsillectomy: Its Effect on Incidence, Severity and Complications of Scarlet Fever and Number of Hemolytic Streptococci in Throat. W. L. Bradford, Rochester, N. Y.—p. 279.
Syndrome Occurring in Neonatal Period Manifesting Tetany-Like Symptoms. H. T. Nesbit, Dallas, Texas.—p. 287.
Soft Curd Milk. H. L. Elias, Rockville Centre, N. Y.—p. 296.
*Effect of Tonsillectomy and Adenoidectomy on Immunity to Diphtheria. N. G. Shaw, Chicago.—p. 301.
Urea Clearance Tests: Their Limitations as Measure of Renal Function in Childhood. L. E. Holt, Jr., Baltimore.—p. 306.
*Auricular Fibrillation in Childhood. H. W. Schmitz, New York.—p. 310.
Erythroblastic Anemia: Review of Cases Reported Showing Roentgenographic Changes in Bones and Five Additional Cases. L. A. Koch and B. Shapiro, Brooklyn.—p. 318.
Racial or Familial Anemia of Children: Associated with Fundamental Disturbances of Bone and Pigment Metabolism (Cooley-von Jaksch). G. H. Whipple and W. L. Bradford, Rochester, N. Y.—p. 336.
Method for Continuous Infusion of Infants. J. M. Brush, New York.—p. 366.
Disease of Gallbladder in Children. A. H. Montgomery, Chicago.—p. 372.

Function of Liver in Scarlet Fever.—Van Creveld draws attention to the fact that, in fructose and galactose tests of the function of the liver in a large number of children with scarlet fever during the first days of the illness, only a small percentage of the cases showed slight deviations, which could be demonstrated in the blood and the urine only by means of galactose. With the disappearance of the clinical symptoms of liver insufficiency during the first days of scarlet fever, this disturbance in carbohydrate metabolism could be demonstrated during the following weeks with increasing frequency. The difference between the results of the fructose and galactose tests remained. During the period when the complications of scarlet fever appear, this disturbance of the liver function occurred most frequently, though a direct relation to the involvement of other organs than the liver could not be demonstrated. Tests of the toleration for dextrose for the purpose of judging the changes in the function of the liver did not give definite results. The icterus that frequently occurs in scarlet fever when the first stage is passed clinically resembles icterus catarrhalis. The tolerance for galactose is severely disturbed. In fifteen cases investigated, the tolerance for fructose, however, was not distinctly changed. The author mentions the possibility of a difference between the function of the liver in icterus catarrhalis and that in icterus occurring in scarlet fever after the acute fever stage has passed. Finally, this investigation deals almost exclusively with mild cases, in accordance with the character of the scarlet fever observed in Amsterdam in recent years.

Tonsillectomy.—Bradford states that, in a group of 600 patients with scarlet fever, 122 (20 per cent) had previously been tonsillectomized. The expected number operated on for the community from which the sample was secured should have been 144 (24 per cent). Therefore, a slight but statistically insignificant beneficial effect of tonsillectomy on the incidence of the disease occurred. The degree of severity of the disease was about the same in the tonsillectomized and in the nontonsillectomized children, in a series of 533 hospital cases. Complications developed in 47 (43.9 per cent) of the tonsillectomized group and in 200 (46.9 per cent) of the nontonsillectomized group. At the appearance of the rash, the average percentage of hemolytic streptococci in the throats of 312 children with their tonsils in was 26.7. In a group of 85 without tonsils, it was 21.0. In either group, the percentage of streptococci increased slightly with the degree of severity of the disease. The average percentage of streptococci in the throat during the first few days of scarlet fever were about equal in the children who later developed complications and in those who escaped. This was true regardless of whether or not the child had previously been operated on. The rate of disappearance of the organism from the throat was about equal in children with and those without tonsils. The tonsillectomized child, however, had a few less organisms throughout convalescence. At the end of the usual period of isolation of thirty days, 17 per cent of the tonsillectomized group and 22 per cent of the nontonsillectomized group had hemolytic streptococci in their throats, an excess of 5 per cent.

Effect of Tonsillectomy on Immunity to Diphtheria.—Shaw made Schick tests on 174 city children. Of 155 with tonsils, 31.1 per cent gave negative reactions without obvious explanation; of 19 children with tonsils removed, 33.3 per cent gave negative reactions, as compared to 81 per cent as reported by Schick and Topper; of 34 children with positive reactions to the Schick test before tonsillectomy, 8.8 per cent gave negative reactions in from six to fourteen months after the operation, as compared to 82 per cent as reported by Schick and Topper. These results do not indicate that among city children tonsillectomy and adenoidectomy produce a humoral immunity against diphtheria as measured by the Schick test.

Auricular Fibrillation.—Schmitz gives the case histories of nineteen children with auricular fibrillation and emphasizes the fact that auricular fibrillation in childhood is perhaps encountered more frequently than the earlier literature indicates. In children this form of irregularity is practically always associated with rheumatic heart disease. The incidence is greater in the second than in the first decade of life. The condition is observed in the course of either active or inactive advanced rheumatic heart disease. The arrhythmia, once established, may persist, or it may occur in short paroxysms and as a complication in the terminal stage of active carditis. The prognosis of auricular fibrillation in childhood is chiefly determined by the nature of the underlying disease process. Fibrillation of the auricles associated with active carditis indicates a grave prognosis. With a change in the character of the disease process from an active to an inactive phase in later childhood, a brighter outlook may be hoped for. The treatment for auricular fibrillation in childhood varies with the condition of the individual child. If active infection is present, absolute rest in bed and good nursing care are indicated. For congestive failure and rapid ventricular rate, adequate doses of digitalis are administered. In the chronic form, associated with inactive rheumatic heart disease, the treatment is the same as for auricular fibrillation in adults.

Archives of Dermatology and Syphilology, Chicago

26: 215-396 (Aug.) 1932

*Juvenile Acrodynia: Report of Eleven Cases. S. Crawford, Pittsburgh.—p. 215.
Lymphogranulomatosis Inguinalis or Durand-Nicolas-Favre Disease: Review of Literature and Report of Three Cases. S. J. Zakon, Chicago.—p. 238.
*Dermatofibroma: Report of Cases. E. F. Traub and S. Monash, New York.—p. 250.
*Xeroderma Pigmentosum: Report of Mild Case with Histopathologic Studies. H. Montgomery, Rochester, Minn., and M. J. Reuter, Milwaukee.—p. 256.
Hodgkin's Disease of Skin: Report of Case. J. R. Lisa, New York.—p. 268.
*Neurotropism of Spirochaeta Pallida: Experimental Studies, with Especial Reference to Asymptomatic Syphilis of Mice. G. W. Raiziss and Marie Severac, Philadelphia.—p. 271.
Hereditary Multiple Telangiectasia: Goldstein's Heredofamilial Angiomatosis with Familial Hemorrhages or Rendu-Osler-Weber's Disease. H. I. Goldstein, Camden, N. Y.—p. 282.
Staining of Spirochaeta Pallida in Smears by Alcoholic Silver Nitrate. R. T. Bothe and H. A. Davenport, Chicago.—p. 309.
Dermatitis Venenata: Report of Case Due to Osage Orange. A. Schur, Far Rockaway, N. Y.—p. 312.
Skin Diseases in Nonsurgical Renal Disease. L. Chargin and H. Keil, New York.—p. 314.

Juvenile Acrodynia.—According to Crawford, infantile or juvenile acrodynia is a striking disease syndrome of the neuromuscular and mucocutaneous system which has been recognized in Australia for the past forty years but only for the past fifteen years in the United States and for the past twelve years in Canada. The first cases in England, where it is often called

Swift's disease, probably were those reported by Doak. The first cases in Europe, where it is often called Feer's disease, were reported in 1923 by Feer of Zurich. Juvenile acrodynia affects infants and children from 2 months to 2 years of age and occasionally older children and adults. The ages of the majority of children affected are between 1 and 2 years. Males and females are affected equally. Though all the eleven cases reported by the author occurred in white children, he has seen a few suspected cases in Negro infants. The disease lasts from six weeks to one year. Relapses after a few weeks or months of recovery are not infrequent. The mortality is about from 5 to 10 per cent. Because sudden and unexpected death occurs, the prognosis must always be guarded. The victims are highly susceptible to pneumonia, which often terminates fatally. In the author's series of cases, the mortality was 36 per cent and was chiefly due to pneumonia. The treatment is difficult, as there is no specific medication and symptomatic remedies are of little avail. Sedative drugs are of no value, as they do not have any effect on the irritability and pain. Feeding is of major importance, since children receiving regular nourishing food usually do well, while those lacking or refusing food do poorly. Gavage must be resorted to if necessary. Foods rich in vitamins A and B are indicated, and abundant orange and tomato juice, yeast and cod liver oil are evidently of great assistance. Wyllie and Stern advocated a diet of liver, which, they conclude, contains a definite curative factor. Feer advocated from 5 to 10 drops of 1:1,000 solution of atropine sulphate four times daily. Ultraviolet irradiation is of no value. If there is any support for the theory that the eruption is of the nature of actinodermatitis and is due to a photosensitive state, ultraviolet irradiation is contraindicated. Swift considered artificial sunlight once every three days for nine treatments as beneficial. Cold applications to the skin give the most relief. Calamine lotion made up in camphor water is soothing to the general cutaneous surface. Cold wet dressings of 1 per cent boric acid solution, physiologic solution of sodium chloride, Ringer's solution or very dilute solution of aluminum acetate to the extremities and genitalia are comforting. Daily applications of olive oil or of ointment of rose water tend to keep the skin soft and to prevent dryness. Powdered corn starch or camphorated talcum powder is soothing. It is often necessary to employ restraining measures to control the restlessness and to prohibit self mutilation.

Dermatofibroma.—Traub and Monash have observed ten cases of dermatofibroma, two of which clinically resembled Boeck's sarcoid. The cases are not described separately, as they were all very similar. The patients were adults, nine women and one man. The lesions, which varied in size from 4 mm. to 1 cm. in diameter, had been present for varying periods of time, from one to over twenty years, giving rise to almost no subjective symptoms except occasional itching. No history of trauma could be elicited. Most of the patients had only one lesion; a few had two. They were usually reddish with a slight tinge of brown, were hard to the touch, and were freely movable over the subcutaneous tissues. The skin over them was very adherent. Most of the tumors projected slightly over the surface of the adjoining skin, but a few were almost level. In one case in which two tumors had been present for more than twenty years, one of them had spontaneously begun to undergo involution during the past year. One of the patients had had a keloid a few years previously. In no case was the excision of a lesion or biopsy followed by keloid formation. Microscopically, the principal changes were present in the corium, which showed in all cases the presence of a dense mass of fibrous tissue. As a rule, the fibrous tissue contained only a few cells. With the Weigert stain, in all but one of the cases elastic tissue fibers were absent in the dense mass. The epithelium over the dense fibrous tissue varied in appearance, depending on how high into the derma the fibrous tissue infiltration extended. When the papillary layer was normal, the epithelium was also as a rule normal, with only slight lengthening of the rete pegs. When the infiltration involved the upper layer of the cutis, the epithelium showed either enlarged rete pegs or else a marked thinning, probably owing to the pressure of the growth. The authors were unable definitely to account for the formation of these tumors. Possibly trauma of some kind plays a part in their initial production, as claimed by many investigators, but this was not borne out by the history the authors were able to elicit in their cases. The tumors are benign in every respect and are of interest principally from the standpoint of diagnosis.

Xeroderma Pigmentosum.—Montgomery and Reuter report a mild case of xeroderma pigmentosum in a woman aged 32. The condition started, apparently, when the patient was 17, although possibly in early childhood. No ulcerations or neoplasms were present. Diagnosis was established only by histopathologic studies. The latter may be diagnostic if a suitable site to take a specimen of tissue for biopsy is chosen. The nonpigmented, papular lesions on the abdomen, which histologically, however, gave evidence of decreased but spotted pigmentation, and other changes typical of xeroderma pigmentosum, were unusual. The various etiologic factors and the theories regarding the disease are considered, especially in regard to the case reported. So-called senile atrophy of the skin and sensitivity to light or increase in pigmentation of the skin from exposure to light are not necessarily primary etiologic factors in the disease. The authors believe that many mild cases of xeroderma pigmentosum are unrecognized and that usually they are erroneously diagnosed as lentigines. It is important to recognize such cases in order that the patients may be warned of the danger of the development of a malignant condition, and that they may be instructed to protect themselves from the sun and especially from ultraviolet rays.

Neurotropism of Spirochaeta Pallida.—Raiziss and Severac describe experiments from which they are led to formulate the following conclusions: 1. The inoculation of mice with chancre emulsion of syphilitic rabbits results in an asymptomatic infection demonstrated by the transplantation of their organs to normal rabbits. 2. The transplantation of brain material of mice harboring an asymptomatic syphilitic infection yields positive results in a majority of cases. 3. Spirochetes that have thus passed through the brains of mice acquire the remarkable property of being able to penetrate into the brains of rabbits, a property not possessed by the usual Nichols strain of spirochetes which have not passed through the brains of mice. 4. This property, once acquired, is conserved by the spirochetes after several successive passages, whether by transplantation of brain substance or by that of material from a chancre. 5. Since the spirochetes that have passed through the brains of mice are capable of invading the brains of rabbits and persisting there, a new method is indicated for the chemotherapeutic investigation of drugs intended to attack and destroy the spirochete after it has penetrated into the central nervous system of the rabbit.

Bulletin of Neurol. Inst of New York, Baltimore

2: 157-346 (July) 1932

Some Features of Glioblastoma Multiforme. E. M. Deery, New York.—p. 157.
Occurrence of Intranuclear Inclusions in Human Nerve Cells in Variety of Diseases. A. Wolf and S. T. Orton, New York.—p. 194.
*Blood Supply of Gliomas: Its Relation to Tumor Growth and Its Surgical Significance. C. A. Elsberg and C. C. Hare, New York.—p. 210.
*Venous and Arteriovenous Angiomas of Brain: Clinical and Roentgenographic Study of Eight Cases. S. Brock and C. G. Dyke, New York.—p. 247.
Further Studies on Individually Acquired Automatic Associated Movements. R. M. Brickner and L. V. Lyons, New York.—p. 294.
Some Experiments with a New Embedding Material. S. T. Orton and J. Post, New York.—p. 302.
Plantar Tendon Reflexes. S. M. Weingrow, New York.—p. 312.
Demonstration of Normal Cerebral Structures by Means of Encephalography. C. G. Dyke and L. M. Davidoff, New York.—p. 331.

Blood Supply of Gliomas.—Elsberg and Hare state that in the gliomas of the brain there is a close connection between the distribution of the blood vessels and the manner in which they infiltrate the brain tissue. On gross and microscopic examination of postmortem material, the differences between the number of blood vessels in the central and peripheral parts of the tumors and in the adjacent brain tissue are striking. In the astrocytomas and the medulloblastomas, the largest number of vessels occur in the central part of the growths and there is no increase in the number of arteries in the adjacent white matter. In the glioblastoma multiforme, the peripheral areas of the neoplasm contain the largest number of arteries and the vessels in the adjacent brain tissue are more numerous than in normal white matter or in the brain that is adjacent

to the margins of the astrocytomas and the medulloblastomas. As there is a close connection between blood supply and active growth, it has been possible to gain some insight into the manner in which the astrocytomas, medulloblastomas and glioblastomas increase in size and infiltrate the brain that surrounds them. The glioblastoma multiforme is a rapidly growing and highly malignant growth, and in the final analysis the "active" infiltration of the brain and the peripheral type of growth are due to its malignant condition, which is the major factor. The differences in blood supply and in the manner in which the brain is invaded in the astrocytoma and medulloblastoma on the one hand, and in the glioblastoma multiforme on the other, are expressions of the varying degrees of malignancy. The difference in the situation of the blood vessels between the astrocytoma and medulloblastoma and the glioblastoma multiforme can be recognized at operation, and this has led the authors to modify and alter to some extent the technic used for the removal of these growths. At the operating table, in order to gain an approximate idea of the vascularity of different parts of the growth and of its size, the suggestion is made first to bisect the tumor before the attempt is made to remove it. This will permit the surgeon to orient himself better regarding the size and removability of the growth. If he is dealing with an astrocytoma or a medulloblastoma, the central most actively growing part should first be removed. The excision of the peripheral parts may be simplified by this technic. In the glioblastoma multiforme, on the other hand, the periphery of the tumor should especially be attacked.

Venous and Arteriovenous Angiomas of Brain.—Brock and Dyke describe eight instances of intracranial angioma. In four, extracranial vascular lesions coexisted. An unusual instance of venous angioma of the retina, chiasm, midbrain and cerebellum is described. The important eye signs were homonymous hemianopia and unilateral exophthalmos. In the arteriovenous variety, the cardiovascular phenomena were of diagnostic significance. They included enlargement of intracranial, cranial, extracranial and carotid arteries and of the heart; a systolic mitral murmur, and a mild degree of tachycardia. A low systolic with a much reduced diastolic blood pressure and a Corrigan pulse were sometimes found. The resemblance of the cardiovascular disturbances to those seen in aortic regurgitation is commented on. An arterial bruit of extracranial or intracranial origin is an important sign, too often overlooked. The significant roentgen observations consisted of intracerebral calcification, and dilatation and tortuosity of the vascular grooves in the bones of the skull. The peculiar character of the calcification found in the venous angiomas was pathognomonic. Methods of treatment are briefly discussed.

California and Western Medicine, San Francisco

37: 145-216 (Sept.) 1932

Posture During Anesthesia: Its Effect. A. C. Dutton, San Francisco.—p. 145.
Pathologic Departments of Small Hospitals. Zera E. Bolin, San Francisco.—p. 150.
Kahn Precipitation Test, Compared with Kolmer Modification of Wassermann Test in Untreated Primary Darkfield Positive Seronegative Syphilis. S. O. Chambers, Los Angeles.—p. 153.
Partial Gastric Resection. E. E. Larson, Los Angeles.—p. 155.
Upper Urinary Tract and Adjacent Organs: Differential Diagnosis of Pathologic Conditions: Report of Cases. W. E. Stevens, San Francisco.—p. 160.
Organic Somatic Diseases: Associated with Nervous and Mental Disturbances. J. M. Wolfsohn, San Francisco.—p. 167.
Hemothorax and Hemopericardium. F. S. Dolley, Los Angeles.—p. 171.
Dislocation of Astragalus, Associated with Fracture of Cuboid and Fibula Following Simple Injury: Report of Case. S. L. Haas, San Francisco.—p. 176.
Cardiovascular Tests in Adolescent Girl: As an Index to Cardiac and Physical Efficiency. Katherine M. Close, Los Angeles.—p. 178.
The Hospital for Chronic Diseases: Its Place in Community, with Particular Reference to Care and Study of So-Called Degenerative Diseases. E. S. du Bray, San Francisco.—p. 181.

Georgia Medical Association Journal, Atlanta

21: 301-344 (Aug.) 1932

Symposium on Urology: Tuberculosis of Kidney: Symptoms, Treatment and Apparent Prevalence in Georgia. W. L. Bazemore, Macon.—p. 301.
Id.: Abnormal Ureters. S. A. Kirkland, Atlanta.—p. 304.
Id.: Perinephritic Abscess. E. B. Anderson, Americus.—p. 309.
Arthroplasty of Temporomandibular Joint: Report of Case. J. D. Blackburn, Atlanta.—p. 314.

Iowa State Medical Society Journal, Des Moines

22: 383-426 (Aug.) 1932

Surgical Clinics. D. Lewis, Baltimore.—p. 383.
Significant Laboratory Tests for the General Practitioner. Mary H. Swan, Chicago.—p. 387.
Diffuse Glomerulonephritis. J. L. Kestel, Waterloo.—p. 391.
Hypertensive Kidney. W. Cary, Dubuque.—p. 393.
Tuberculosis of Kidney. J. C. Donahue, Centerville.—p. 396.
Perinephritic Abscess. R. A. Fox, Charles City.—p. 400.
Head Injuries: Review of Newer Aspects of Treatment. R. O. Pfaff, Des Moines.—p. 404.
Hygroma Cysticum Colli: Case Report with Review of Literature. C. N. Hyatt, Des Moines.—p. 406.

Journal of Bacteriology, Baltimore

24: 85-168 (Aug.) 1932

Studies on Bacterial Spores: III. Contribution to Physiology of Spore Production in Bacillus Mycoides. B. C. Brunstetter and C. A. Magoon, Washington, D. C.—p. 85.
Effect of "Low Voltage" Roentgen Rays on Electrophoretic Migration Velocity, Viability and p_H of Escherichia Coli Suspensions. K. P. Dozois, R. P. Tittsler, M. W. Lisse and W. P. Davey, State College, Pa.—p. 123.
Adsorption Experiments with Virus of Vaccinia. F. F. Tang, Shanghai, China.—p. 133.
Application of Autocatalytic Growth Curve to Microbial Metabolism. H. C. Pulley and J. D. Greaves, Logan, Utah.—p. 145.

Journal of Thoracic Surgery, St. Louis

1: 573-692 (Aug.) 1932

*Certain Aspects of Diagnosis of Bronchostenosis. F. T. Lord, Boston.—p. 573.
Present Status of One Hundred Pneumothorax Patients After from One to Eighteen Years' Expansion of Lung. E. N. Packard, Saranac Lake, N. Y.—p. 581.
Bilateral Partial Thoracoplasty for Bilateral Pulmonary Tuberculosis. D. S. Allen, St. Louis.—p. 587.
*Results of Cautery Pneumolysis of Adhesions Complicating Artificial Pneumothorax. E. S. Welles, Saranac Lake, N. Y.—p. 601.
Suspended Cavity in Artificial Pneumothorax. E. J. O'Brien, Detroit.—p. 603.
Actinomycosis of Thorax: Report of Case Successfully Operated on. O. H. Wangensteen, Minneapolis.—p. 612.
Putrid Lung Abscess: Its Etiology, Pathology, Clinical Manifestations, Diagnosis and Treatment. H. Neuhof and H. Wessler, New York.—p. 637.
*Medical Treatment of Abscess of Lung. C. Georg, Jr., Ann Arbor, Mich.—p. 650.
Thoracic Complications of Subdiaphragmatic Infection. H. L. Beye, Iowa City.—p. 655.
Anterior Mediastinal Fetal Parasite: Its Surgical Removal: Report of Case. S. W. Harrington, Rochester, Minn.—p. 663.
Subcostal Extrapleural Compression of Lung. L. Eloesser, San Francisco.—p. 672.
Phrenicectomy Forceps. F. H. Washburn, Holden, Mass.—p. 678.

Diagnosis of Bronchostenosis.—Lord states that the perfection of bronchoscopic methods by Killian and Gottstein in Germany, and by Jackson in America, has gone far toward surmounting the difficulties connected with the diagnosis of bronchostenosis. He concludes that progress in the clinical recognition of bronchostenosis is due to an understanding of its consequences and their mode of production and to advances in methods of investigation. Evidence of great value in diagnosis may be obtained from the history, physical signs and roentgen examination. None of the three can be safely neglected. Physical signs are of chief importance in obstruction atelectasis and roentgen examination in obstruction emphysema.

Cautery Pneumolysis of Adhesions Complicating Artificial Pneumothorax.—Welles gives the results in a series of 141 cases of adhesions complicating artificial pneumothorax in which cautery pneumolysis was used. No case of hemorrhage occurred in the whole series. It was impossible to give the total number of adhesions cut; but, since the case with one single adhesion is unusual and the number found is apt to vary from two to three up a dozen or more, it is fair to assume that in the series of 141 cases as many as 500 individual adhesions were cut. The danger from bleeding therefore is remote. The author encourages the use of cautery pneumolysis by any one employing artificial pneumothorax who has so far been unconvinced as to its soundness or doubtful about its safety.

Medical Treatment of Abscess of Lung.—Georg's treatment for cases of abscess of the lung has been rest for a period of at least two months during the initial stage of its course. More or less continuous postural treatment was adopted. The length of time for the continuance of this treatment depends on the strength of the patient. When treated in this way, the

pus continues to pour out in large quantities until the drainage is complete. In the course of a month or six weeks the amount of expectoration becomes reduced to about one tablespoonful of glairy mucus in twenty-four hours. Patients with lung abscess should be supplied with highly nourishing food often. The author's internal medication consists of terpin hydrate, silicic acid, and calcium glycerophosphate. All patients with lung abscess should receive medical treatment during the beginning of their course. Good results were obtained in several single lung abscesses and in some chronic abscesses. Patients who do not improve under medical treatment within two months should be subjected to bronchoscopic or surgical treatment. Bacteriophage was found to be of value in the medical treatment of lung abscesses.

Medical Annals of District of Columbia, Washington

1: 203-226 (Aug.) 1932

*Benign Lymphocytic Meningitis: Report of Two Cases. W. A. Bloedorn, Washington.—p. 203.
*Intracranial Aneurysms. W. Freeman, Washington.—p. 206.
Clinical Aspects of Aneurysm of Aorta. L. T. Gager, Washington.—p. 212.
Apparently Spontaneous Acute Pulmonary Abscess: Report of Case. V. J. Dardinski, Washington.—p. 215.
Recent Advances in Physiology of Sex. E. I. Evans, Washington.—p. 217.

Benign Lymphocytic Meningitis.—Bloedorn observed two cases of so-called benign lymphocytic meningitis. This particular type of meningitis has been described by a sufficient number of observers and from countries far enough apart to warrant the conclusion that it is at least a distinct clinical entity with which one should be familiar and for which one should be on the alert. The disease is characterized by an acute onset with headache, vomiting and moderate fever. It is self-limited, recovery taking place usually without complications or sequelae. The cerebrospinal fluid shows marked increase in the lymphocytic cells. The smears are negative and cultures sterile. Tuberculous meningitis is the condition usually suggested by the clinical picture and cerebrospinal fluid observations. The disease is benign and thus far complete clinical recovery has been reported in all cases.

Intracranial Aneurysms.—Freeman reports twelve cases of intracranial aneurysms, showing different phases of the problem. There is no typical clinical picture, but ruptured aneurysm should be suspected especially in a young person who suffers sudden terrific headache, with vomiting and prostration. Paralysis of either hemiplegic or neural type is quite suggestive, and bloody spinal fluid is almost diagnostic. In older patients intracerebral hemorrhage cannot usually be differentiated from ruptured aneurysm, but if a patient recovers from an attack of subarachnoid hemorrhage, rupture of an aneurysm was probably the cause. Larger aneurysms are less prone to rupture than are small ones, since their growth is apt to be associated with clotting. While this is a conservative process, the thrombus may extend into neighboring vessels and produce widespread infarction. Intact aneurysms are seldom the cause of intracranial hypertension, since they grow slowly and do not obstruct the fluid pathways. The treatment is directed toward the maintenance of life during the period of clot formation in the ruptured aneurysm. Complete rest, venesection and dehydration are suggested, and lumbar puncture is considered dangerous. Prolonged slow recovery should be allowed. The prognosis is uncertain but not entirely bad even when rupture has occurred.

Medical Journal and Record, New York

136: 177-220 (Sept. 7) 1932

Emergency Treatment of Household Accidents. H. B. Mills, Philadelphia.—p. 177.
Use of Convalescent Serum in Pneumonia. E. F. Traut, Chicago.—p. 178.
Biologic Therapy: The Importance in Medicine. A. Bassler, New York.—p. 180.
Injection Treatment of Hernia. F. D. la Rochelle, Springfield, Mass.—p. 184.
Effect of Testicular Implantations on Bronchial Asthma. J. O. Hawkins, San Rafael, Calif.—p. 186.
Observations on Seventy-One Mixed Tumors of Parotid Gland. W. Neill, Jr., Baltimore.—p. 187.
Vertebral Arthritis. W. J. Moore and D. Kyle, Glasgow, Scotland.—p. 189.

Michigan State M. Society Journal, Grand Rapids

31: 561-616 (Sept.) 1932

Some Common Otologic Problems. C. F. Snapp, Grand Rapids.—p. 561.
Indications for Cesarean Section. R. S. Siddall, Detroit.—p. 564.
Visceral Syphilis. P. A. O'Leary, Rochester, Minn.—p. 567.
Secondary Anemia. C. H. Watkins, Rochester, Minn.—p. 570.
Pernicious Anemia: Report of Unusual Case. G. A. Sherman, Pontiac.—p. 574.
Birth Control Movement. G. Kamperman, Detroit.—p. 577.
Chronic Polypoid Maxillary and Ethmoid Sinusitis with Asthma: Case Report. M. P. Miller, Detroit.—p. 582.
Michigan's Department of Health. C. C. Slemons, Lansing.—p. 583.

New York State Journal of Medicine, New York

32: 997-1050 (Sept. 1) 1932

Artificially Induced Fever in Treatment of Disease. C. M. Carpenter and S. L. Warren, Rochester.—p. 997.
Adrenals in Health and Disease. M. A. Goldzieher, Brooklyn.—p. 1001.
Modern Conceptions of Hay Fever. H. I. Shahon, New York.—p. 1006.
Some Dried Foods Used in Infant Feeding. C. W. Martin, Far Rockaway.—p. 1012.
Rôle of Sulphur in Dermatology. F. C. Combes, New York.—p. 1019.

32: 1051-1100 (Sept. 15) 1932

*Symptomless Hydronephrosis Revealed by Trauma: Report of Three Cases. G. E. Slotkin, Buffalo.—p. 1051.
*Celiac Disease. A. C. Silverman, Syracuse.—p. 1055.
Dermatology and Its Relation to General Medicine. Marion B. Sulzberger, New York.—p. 1061.
General Practice Before Specialism of Practice. W. B. D. van Auken, Troy.—p. 1068.
Meckel's Diverticulitis in an Infant. R. R. Moolten, New York.—p. 1070.
Review of Problem of Acute Food Intoxication. G. H. Knoll, Le Roy.—p. 1071.

Symptomless Hydronephrosis Revealed by Trauma.—Slotkin presents three cases of unusual hydronephrosis, which pathologically proved to be of long standing. Symptoms were not manifested by any of the patients until aggravated by an injury. The injury was not sufficient to cause the amount of damage manifested in the kidneys. Persistence of urinary symptoms after any injury, no matter how trivial, warrants a complete urologic examination. The author points out that a large hydronephrosis may persist for years, symptomless and unrecognized.

Celiac Disease.—The clinical symptomatology of celiac disease is described by Silverman, in view of the rarity of this condition and the relative unfamiliarity with it on the part of many physicians. The six cardinal symptoms are (1) arrested growth and development, (2) large abdomen, (3) large, characteristic stools, (4) hydrolability and fluctuation of weight, (5) anemia, and (6) nervous manifestations and personality changes. The author presents five illustrative cases, together with brief accounts of the dietetic treatment. He found it advisable to start with a low fat, low cellulose and low buffer content, such as is found in skimmed protein milk or skimmed lactic acid milk; to this he later added cottage cheese, egg, scraped beef, sieved liver, gelatin, mashed vegetables and fruit. He discusses the rationale of the dietary management in the light of the available knowledge on the pathogenesis of celiac disease. Its possible prophylaxis is considered and is compared to principles of nutrition and to present American dietaries for infants.

Oklahoma State Medical Assn. Journal, Muskogee

25: 369-410 (Sept.) 1932

Tracheotomy: Its Indications and Management. L. C. McHenry, Oklahoma City.—p. 369.
Tumors of Nasopharynx. W. L. Bonham, Oklahoma City.—p. 372.
Bilateral Orbital Abscesses Following Sinusitis: Case Report. F. S. Clinton and B. W. Ward, Tulsa.—p. 376.
Examination of Ears in Industrial Cases. T. G. Wails, Oklahoma City.—p. 379.
Perforation of Nasal Septum. H. S. Browne, Ponca City.—p. 382.
Infantile Tetany. W. M. Taylor, Oklahoma City.—p. 383.
Eye Grounds in Everyday Practice. A. C. McFarling, Shawnee.—p. 385.
Some Aspects in Etiology and Treatment of Acute and Chronic Glaucoma. E. J. Curran, Kansas City, Mo.—p. 387.
Cistern Puncture in Neurosyphilis. J. F. Campbell, Muskogee.—p. 393.

South Carolina Medical Assn. Journal, Greenville

28: 199-218 (Aug.) 1932

Structural Changes in Pellagra. K. M. Lynch, Charleston.—p. 202.
History of Pellagra in South Carolina. J. A. Hayne, Columbia.—p. 205.
Unusual Case Report. T. R. Gaines, Anderson.—p. 209.
Fibroma of Mesentery: Case Report. L. H. McCalla, Greenville.—p. 211.

Southwestern Medicine, Phoenix, Ariz.

16: 313-354 (Aug.) 1932

Burns and Their Treatment. N. C. Bledsoe, Tucson, Ariz.—p. 313.
The Neutrophil Leukocyte. H. P. Mills, Phoenix, Ariz.—p. 317.
Recent Aspects of Epidemiology and Serum Treatment of Poliomyelitis. Beatrice F. Howitt, San Francisco.—p. 320.
The Arizona State Board of Medical Examiners and the Medical Profession. B. M. Berger, Phoenix, Ariz.—p. 327.
Hay Fever, Asthma and Tuberculosis. R. A. Wilson, Tucson, Ariz.—p. 330.

Tennessee State Medical Assn. Journal, Nashville

25: 339-382 (Sept.) 1932

*Carcinoma of Cervix. F. W. Smythe, Memphis.—p. 339.
Clinical Manifestations, Treatment and Prevention of Ascariasis. A. E. Keller, Nashville.—p. 346.
*Relationship of Nephritis, Hypertension and Heart Disease. W. R. Cate, Nashville.—p. 353.
Should Criminals Have Psychiatric Examination? H. B. Brackin, Nashville.—p. 361.
*"Skull and Brain Trauma." J. R. Smoot, Knoxville.—p. 368.
Herpes Zoster Ophthalmicus. J. B. Stanford, Memphis.—p. 372.

Carcinoma of Cervix.—Smythe points out that the mortality from cancer of the cervix is far too high; it can and must be reduced. Since the condition occurs at all ages (his extreme age limit was from 83 to 21), every woman should be regarded as possibly having it and, in order to be fully protected, must appear at definite intervals for examination, and any cervical lesions must be eradicated. The diagnosis is not difficult; it is made by palpation, inspection and microscopic study. The treatment depends on the type and group. All need radium and roentgen therapy. The glandular type of the first group, in addition to these agents, should be treated surgically after radium. Lastly, a woman with a suspected or proved carcinoma of the cervix should not be referred to a surgeon just for surgery, to a roentgenologist just for roentgen therapy or to a radiologist just for radium but to a man who, with the assistance of an able pathologist, will diagnose and classify the lesion, will operate in the few cases in which surgical intervention is indicated, will give proper radium treatment to all, and will see that each patient receives the benefit of roentgen therapy.

Nephritis, Hypertension and Heart Disease.—According to Cate, heart diseases are definitely on the increase, ranking first as a cause of death throughout the United States. The hypertensive diseases constituted the largest single group of cases encountered. The hypertension is in most instances of nonrenal origin, the so-called essential hypertensions, and a lesser group, of renal origin. The etiologic factors concerned in the production of the hypertension of the nonrenal group are unknown, but there is a strong hereditary factor involved, with accessory factors of lesser importance. Death in this group is cardiac in 90 per cent of the cases and cardiorenal in 10 per cent. A careful study of each case is necessary to differentiate it from the second group of hypertensions of renal origin. At times such differentiation is impossible, but the more carefully the cases are studied the more often such a distinction is possible. The cases of renal hypertension are of two classes—first, those due to chronic glomerulonephritis, always secondary to previous recognized or unrecognized acute glomerulonephritis; the second, renal arteriosclerosis, dependent on sclerosis of the glomerular arterioles. The one is inflammatory in origin, the other noninflammatory. Careful analysis of these cases will usually suffice to differentiate between the two conditions. The relationship of the kidneys to the hypertension should be accurately determined, to the end that unnecessary interference with dietary habits may be avoided.

"Skull and Brain Trauma."—Smoot states that treatment of skull and brain trauma is of great economic importance. First, the shock should be treated and the patient should not be subjected to unnecessary examination, roentgen and operative procedures. One should have a clear, simple outline of treatment for these cases. The most important thing is the injury to the brain. Edema is the most frequent cause of increased intracranial pressure. The dehydration method with 50 per cent dextrose intravenously is most conservative, with repeated spinal tap in selected cases, and operative treatment in compound fractures and depressed fractures.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

13: 299-402 (Aug.) 1932

Cholesterol Variations in Experimental Anemias. E. N. Chamberlain and R. L. Corlett.—p. 299.
Growth of B. Pyocyaneus in Synthetic Mediums. G. L. Robinson.—p. 310.
Action of Beta Radiations from Radium on Chorio-Allantoic Membrane of Chick Embryo. Daphne Goulston.—p. 317.
Mucous Changes in Epithelial Cells of Rat's Vagina During Early Stages of Pregnancy. H. Florey.—p. 323.
Influence of Nutrition on Susceptibility to Bacterial Toxin. T. J. Mackie, A. H. H. Fraser, M. H. Finkelstein and E. J. M. Anderson.—p. 328.
Further Observations on Bacterial Cataphoresis. H. C. Brown and J. C. Broom.—p. 334.
Migration Rate and Virulence of C. Diphtheriae. J. C. Broom and H. C. Brown.—p. 337.
Estimation of Small Amounts of Specific Bacterial Polysaccharide by Induction of Anaphylaxis. W. T. J. Morgan.—p. 342.
Experimental Inflammation of Colon: (*a*) Relationship of Mucus Production in Goblet-Cells to Golgi Apparatus; (*b*) Mitochondrial Changes. H. Florey.—p. 349.
Schick Tests in Iceland. N. Dungal.—p. 360.
Growth and Metabolism of Bovine Pleuropneumonia Virus. Barbara E. Holmes and Antoinette Pirie.—p. 364.
Serologic Study of V. Cholerae and Related Vibrios. M. A. Gohar.—p. 371.
Specific Precipitin Reaction Associated with Growth on Agar Plates of Meningococcus, Pneumococcus and B. Dysenteriae (Shiga). G. F. Petrie.—p. 380.
Quantitative Aspects of Immunity Reactions: Combination of Antibodies with Simple Haptenes. J. Marrack and F. C. Smith.—p. 394.

British Journal of Ophthalmology, London

16: 513-576 (Sept.) 1932

Recurrent Intra-Ocular Hemorrhage in Young Adults (Eales' Disease): Being an Account of the Disease, Summary of Literature, Report of Five Cases and Some Speculations as to Etiology. H. P. Hutchinson.—p. 513.
*Metastatic Carcinoma of Choroid: Report of Two Cases Where Primary Neoplasm Was in Lungs. R. F. Moore and H. B. Stallard.—p. 532.
Metastatic Carcinoma of Orbit. D. Michail.—p. 537.
An Unusual Result Following Traumatic Iridocyclitis. D. J. Wood.—p. 546.
*Case of Filariasis Oculi. K. K. Nayar and A. K. Pillai.—p. 549.
Paralysis of Ocular Muscles Following Spinal Anesthesia. J. Biggam.—p. 552.
Acute Glaucoma: Historical Note. A. Sorsby.—p. 555.

Metastatic Carcinoma of Choroid.—Moore and Stallard report two cases of metastatic carcinoma of the choroid in which the primary neoplasms were in the lungs. In their search of the literature they reveal the rarity of metastatic carcinoma of the uveal tract following a primary carcinoma in the lung or a bronchus. It is difficult to obtain accurate statistics of this disease, for it is probable that some patients in the last stages of malignant cachexia die without the ocular lesion being recognized. Lagleyze states that in his experience metastatic carcinoma of the uveal tract occurred in 1 in 100,000 patients, and van der Hoeve has remarked that his predecessor Mulder had never seen a case in thirty-five years of practice. Since 1925, two patients suffering from this disease have presented themselves at the Moorfields Eye Hospital out of an attendance of 276,000. Of the cases described in the literature, the site of the primary neoplasm was the breast in 65 per cent and the lung next in 10 per cent. Pinchin remarks that he sees each year an average of twenty-four patients suffering from a malignant neoplasm of the lungs, and that before the cases reported by the authors he had never seen a secondary metastatic deposit in the eye. The metastases occurring were frequently in the kidneys and suprarenals.

Filariasis Oculi.—Nayar and Pillai present the case history of a patient with filariasis of the left eye, in which, in the vitreous, just in front of the macula, was seen a threadlike, wriggling worm, coiling itself and moving briskly, especially when light was thrown directly on it. There was an oval clot of blood, about three-fourths the size of the optic disk, near the macula, to which one end of the worm was attached; the other end of the worm kept on moving in different directions in the posterior part of the vitreous. The worm appeared to be, roughly, about 3 mm. long at that time. At times a sheath could be made out, as also what appeared to be a few silvery white bands across the worm. Whether these bands were due to reflection of light from the convex surfaces of the loops

formed by the moving worm, it is difficult to say. On the nineteenth day of observation the worm was found lying in the bottom of the anterior chamber and moving about briskly when light was thrown on it. The appearance was that of an adult filaria. Details could not be made out by biomicroscopy on account of the worm's activity. The patient observed the presence of the floating object in front of his eye now and then. The authors decided to remove the worm from the anterior chamber; after the usual preliminaries, a small keratome incision was made at the limbus below; the aqueous rushed out through the wound, evidently carrying the worm with it, but unfortunately the worm was lost in spite of all precautions. The anterior chamber was refilled with physiologic solution of sodium chloride but no trace of the worm could be made out.

Guy's Hospital Reports, London

82: 1-128 (Jan.) 1932

Report on Treatment by Radium at Guy's Hospital During 1930. E. G. Slesinger, H. L. Eason, D. W. C. Northfield, G. F. Gibberd and C. E. Iredell.—p. 3.
*Achlorhydria: Review of Three Hundred and Thirty-Six Cases. S. J. Hartfall.—p. 13.
The Blood in Hodgkin's Disease, with Especial Reference to Eosinophilia. W. G. Sears.—p. 40.
Hodgkin's Disease of Lung. S. J. Hartfall.—p. 55.
Acute Myeloblastic Leukemia: Case. H. Barber and F. J. Knott.—p. 75.
Hereditary Telangiectasia with Hemorrhagic Tendency. A. F. Hurst and N. S. Plummer.—p. 81.
Id.: Four Cases. A. C. Hampson.—p. 87.
Id.: Family VII: Familial Telangiectasia with Epistaxis and Bleeding from Lips and Finger Tips. A. G. Yates.—p. 96.
Strangulated Hernia: Three Cases. P. Turner.—p. 98.
Diverticulum at Duodenojejunal Flexure Simulating Radiologically a Gastric Ulcer. P. J. Briggs and A. F. Hurst.—p. 106.
Note on Investigation of Efficiency of Gauze Obstetric Masks. L. W. Cann.—p. 114.
Association of Ophthalmic Lesions with Certain General Diseases. A. W. Ormond.—p. 119.

82: 129-255 (April) 1932

Infection of Maxillary Antrum. W. M. Mollison.—p. 131.
Arterial Angioma of the Brain: Case. J. Croot.—p. 136.
Basophil Adenoma of Anterior Lobe of Pituitary: "Cushing's Syndrome": Case. P. M. F. Bishop and H. G. Close.—p. 143.
A Case of Cretinism. H. G. Close.—p. 154.
Levulose Tolerance Test: Study of Its Value, with Especial Reference to Mild and Chronic Diseases of Liver. S. Kimball.—p. 157.

Achlorhydria.—Hartfall reports 336 cases of achlorhydria occurring among 2,448 patients, with details of their age and sex distribution. Achlorhydria due to Addison's anemia-subacute combined degeneration, to gastric carcinoma and to gastric operations are considered separately. The remaining "residual" achlorhydrias are similarly analyzed. When the sexes are considered separately, among the females achlorhydria is nearly twice as common as among males; there is a sharp increase with age beyond 40 in females, but for males the frequency remains almost constant. The significance of these facts is discussed in relation to the theory of latent gastritis and in the etiology of carcinoma of the stomach. Under etiology, hereditary and nervous factors are considered, and conditions causing gastritis are analyzed with reference to the residual group. The primary diagnoses and certain associated conditions such as gastric carcinoma, primary and secondary anemia, biliary and intestinal infection are briefly mentioned. Certain symptoms of the achlorhydric state are described, together with their frequency. In particular the usually accepted explanations of gastrogenous diarrheas are found not to apply. Treatment from the point of view of restoration of normal gastric juice is discussed, and the efficacy of repeated gastric lavage with solution of hydrogen dioxide is shown.

Indian Journal of Medical Research, Calcutta

20: 1-354 (July) 1932

Standardization of Russell's Viper Antivenin. L. A. P. Anderson.—p. 1.
Experimental Infection of Some Indian Mosquitoes with Wuchereria (Filaria) Bancrofti. S. S. Rao and M. O. T. Iyengar.—p. 25.
Notes on Spontaneously Agglutinating Strains of V. Cholerae Both Natural and Artificially Produced. A. N. Goyle and P. N. sen Gupta.—p. 35.
Experimental Contribution to Diagnosis of Pernicious Anemia. K. N. Murthi and P. J. S. Rao.—p. 43.
Notes on Some Indian Species of Genus Phlebotomus: Part XXX. Diagnostic Table for Females of the Species Recorded from India. J. A. Sinton.—p. 55.
Lead in Urine. T. C. Boyd and H. D. Ganguly.—p. 75.
Relative Values of Meinicke Microflocculation Test and Wassermann Reaction Based on Comparison of Twelve Thousand Serums. R. C. Wats and C. M. E. Eyles.—p. 81.
Some Sources of Vitamin C in India: Part II. Germinated Pulses, Tomatoes, Mangoes and Bananas. R. C. Wats and C. M. E. Eyles.—p. 89.
Action of Venom of Indian Daboia (Vipera Russellii vel Vipera Elegans) on Certain Protozoa. R. N. Chopra and J. S. Chowhan.—p. 107.
Standards for Predicting Normal Vital Capacity of Lungs in South Indian Women from Height, Weight and Surface Area. Eleanor D. Mason.—p. 117.
Relative Susceptibility of Chinese Hamsters (Cricetulus Griseus) to Kala-Azar by Oral and Subcutaneous Routes. H. E. Shortt and C. S. Swaminath.—p. 135.
Distribution and Cause of Endemic Goiter in United Provinces: Part II. Naked Eye and Microscopic Anatomy of Goiter, with Especial Reference to Endemic Goiter of United Provinces. H. Stott.—p. 139.
Id.: Part III. Cause and Summary of Treatment. H. Stott.—p. 147.
Anthropometric Measurements in Bombay: Part I. Anthropometric Study of Two Hundred Subjects (One Hundred Male and One Hundred Female). G. M. Kurulkar and V. S. Rajadhyaksha.—p. 155.
Observations on Edematous Nephritis. T. A. Hughes and K. S. Malik.—p. 263.
Climate in Which Rat-Flea Lives. P. A. Buxton.—p. 281.
Unusual Type of Parasitic Infection of Forearm. A. Vasudevan.—p. 299.
Seasonal Incidence of Tertian, Subtertian and Quartan Infections. M. O. T. Iyengar.—p. 303.
Observations on Detoxication of Daboia Venom by Hepatic Lipoids, with Note on Antiviperine Potency of Kasauli Antivenin. G. C. Maitra and S. M. K. Mallick.—p. 327.
Observations on Filariasis in Some Areas in British India: Part VIII. V. T. Korke.—p. 335.
Value of Wilson and Blair's Bismuth Sulphite Medium in Isolation of B. Typhosus from Feces and Sewage. A. D. Stewart and S. C. Ghosal.—p. 341.
Studies on Antigenic Structure of Vibrio Cholerae: Part I. Serologic Reactions of Carbohydrate-Like Fraction. R. W. Linton.—p. 347.

Lancet, London

2: 377-426 (Aug. 20) 1932

Relation of Ultraviolet Light to Nutrition. Harriette Chick.—p. 377.
*Treatment of General Paralysis of the Insane by Malaria and Sulphur. N. G. Harris and J. A. B. Hicks.—p. 384.
Rôle of Tissue Juices in Thrombosis. J. W. Pickering and S. N. Mathur.—p. 387.
Connection Between Cardiac "Nodes." T. Jones.—p. 389.
Primary Malrotations in Lumbar Portion of Vertebral Column. E. Cyriax.—p. 390.

Treatment of Dementia Paralytica by Malaria and Sulphur.—Harris and Hicks give an account of 109 cases of dementia paralytica treated with malaria and sulphur, over a total period of eight years. Both malaria and sulphur produce an excellent pyrexia, but the pyrexia from malaria is usually higher and gives quicker and more lasting results. Sulphur is recommended when the patient is too ill to stand malarial treatment or when there is no reaction to malarial treatment. It is elemental sulphur and not a compound which produces the pyrexia. Injections of sulphur in solution produce a considerable leukocytosis. The average leukocytosis of all counts investigated was 19,500 per cubic millimeter, the highest being 37,000. The lowest was 10,000, but this was an increase of 3,000 on the normal prior to the injection. It appeared to them that sulphur suspended in olive oil is the best of these preparations and produced the most constant reaction and leukocytosis. Leukocytosis is highly variable, starts to be noticeable after one hour, and reaches a maximum in three hours. Leukocytosis may last well established for three days, or rapidly fall in from twenty-four to thirty-six hours. The temperature and the leukocytosis in a reaction to an injection of sulphur bear no definite relationship to each other. There seems to be no alteration of the blood urea content as the result of sulphur injections. There has been evidence recently to suggest that injections of sulphur activate a malarial reaction in persons who have been inoculated but have not responded.

Chinese Medical Journal, Shanghai

46: 555-644 (June) 1932

Occupational Therapy in Leprosy. R. M. Wilson.—p. 555.
Value of a Hospital Ship in Flood Relief Work, Including Report of Diagnostic Laboratories Associated with Hospital Ship. R. C. Robertson.—p. 560.
Report of Puzzling Case of Acute Intestinal Obstruction. H. E. Bowles.—p. 575.
Subcutaneous Abscess of Leg Following Mumps. P. B. Price.—p. 581.
Carcinoma of Vulva: Report of Eight Cases. Chang-Ken Chi.—p. 584.
Soybean Culture Mediums: Preliminary Report. E. T. H. Tsen and Shih-Hung Sung.—p. 603.
A Pipet Manipulator. G. P. C. Wang.—p. 607.

Annales de Dermatologie et Syphiligraphie, Paris

3: 785-880 (Sept.) 1932

Atypical Tuberculous Ulcers: Tuberculous Ulcers of Scalp. L.-M. Pautrier.—p. 785.
Knotty Articulations of Fingers: Frequency in Hereditary Syphilis. M. Hissard.—p. 806.
*Treatment of Freckles with Carbon Dioxide Snow. M. Matarasso.—p. 818.

Treatment of Freckles by Carbon Dioxide Snow.—Matarasso obtained better results in the treatment of freckles with carbon dioxide snow than with any other therapy he used. Treatment with decolorizing agents was without result and desquamative therapy is painful, difficult to apply and not acceptable to patients. Treatment with carbon dioxide snow is inoffensive and almost painless. Its technic is precise and will give good results if carefully followed. Each spot is touched separately with the carbon dioxide pencil. In treating freckles on the face, the duration of the application should be three seconds. The pressure should be such that the frosty cupuliform depression which is produced disappears two seconds after removal of the pencil. A vesicular reaction should be strictly avoided. Desquamation occurs between the fifth and the seventh day. Cure is obtained without the slightest scar formation. On the back of the hands the application should last four seconds. The pressure should be such that the frosty cupuliform depression disappears three seconds after the pencil is removed. A vesicular reaction here is not harmful. Desquamation occurs between the fifteenth and the seventeenth day, and healing takes place without scar formation. On the lower arms the pressure should be slightly less because of the finer texture of the skin. A vesicular reaction is to be avoided, as on the face. Desquamation occurs in from eight to ten days. About 100 or 150 spots may be treated at one sitting. Sittings may be repeated about every eight or ten days. There are no positive contraindications to the treatment, but it may be undesirable for persons in whom every lesion due to heat or cold leaves brown spots that are slow in disappearing. In young people in whom the spots are continually multiplying the method is not very useful. Removal of tiny, punctiform spots is not worth while.

Médecine, Paris

13: 645-720 (Sept.) 1932

Effective Arterial Pressure and Functional Circulatory Value. V. Pachon and R. Fabre.—p. 645.
Isolated Heart of Snail. L. Binet and L. Maire.—p. 658.
*Variations of Arterial Tension in Man Under Influence of Atmospheric Pressure. J. Beyne.—p. 670.
Cathodic Oscillography of Cardiac Activity and Muscular Activity in Man. P. Rijlant.—p. 682.
Regulation of Protein Metabolism by Nervous Centers. C. Richet and J. Dublineau.—p. 697.
Antigenic Function of Different Normal and Neoplastic Tissues. P. Girard, E. Peyre and Hélène Boursaus.—p. 705.
*Interferometry in the Clinic. A. Durupt.—p. 709.

Arterial Tension Under Influence of Atmospheric Pressure.—Beyne reports the results of a series of experiments to determine the effect of changes in atmospheric pressure on arterial tension in man. Measurements of arterial pressure were made in atmospheric depression produced in a caisson and during flights in an airplane. In healthy individuals a decrease in atmospheric pressure resulted in an increase in arterial tension. The arterial reaction is not proportional to the atmospheric depression attained, but rather to the rapidity of the change in atmospheric pressure. The reactions in airplane flights were much more pronounced than in the caisson. Further, in the airplane the reaction of the maximum pressure was usually predominant, while in the caisson the increase of the maximum pressure was rarely greater than that of the mean dynamic pressure. The author thinks that during flight in an airplane other factors intervene in addition to the variation in atmospheric pressure and the rapidity of that variation, and that the whole physiopathology of altitude cannot be deduced from experiments in a caisson.

Interferometry in the Clinic.—Durupt describes the use of interferometry for the diagnosis of tumors and discrimination between different endocrine disturbances. The method makes use of Abderhalden's reaction. For the diagnosis of tumors, a powder containing the specific protein of the tumor whose presence is suspected is brought in contact with the serum of the patient. After twenty-four hours the serum exposed to the powder is examined by comparison with a control serum. If the serum contains ferments against the specific albumin contained in the powder, this albumin will have been transformed more or less completely into a soluble peptone and will have entered into solution in the serum, increasing the molecular concentration of the latter. The difference between this concentration and that of the control serum can be measured to the seventh decimal by the interferometer, and this figure represents the fermentative power of the serum for the specific protein concerned. In addition to testing the serum with the powder of the suspected tumor, it should be tested with the powder of the normal organ concerned. The value of the fermentative power of the serum for the tumor must be greater than its fermentative power for the corresponding normal tissue. In most cases it is advisable to test the serum with powders of all the tumors that are clinically considered possible. The results disclose the nature of the ferments in the serum and the strength of their activity on the corresponding proteins. The technic of diagnosing endocrine disturbances is the same as that of tumoral diagnosis, except that powders of endocrine glands are used instead of powders of tumors, but interpretation of the results is more difficult. There is no normal value for the fermentative power of the serum for each gland, but the fermentative values for the different glands stand in a definite invariable relation to one another. This relation has been determined for the anterior and posterior hypophysis, thyroid, thymus, suprarenals and genital gland. If the fermentative value for all the glands is elevated proportionally, this proportion remains normal. If the proportion between the fermentative value for two glands is disturbed, it is the one with the highest value that functions poorly. It appears that augmentation of the fermentative power of the serum for a certain gland is not due to the increased hormonal secretion of the latter but rather to the alteration of the gland itself. This explains why therapy consists in administration of the gland with the highest fermentation value. The test must include all the beforementioned glands, even if only one is suspected.

Policlinico, Rome

39: 521-580 (Sept. 15) 1932. Surgical Section

Men of Glass: Roentgen and Clinical Study of Case of Osteopsathyrosis. P. Abruzzini.—p. 521.
Mixed Tumors of the Parotid Gland. T. Calzolari.—p. 531.
*Simple Hypertrophy of Prostate. R. Memmi.—p. 551.
*Relation Between Postoperative Ulcer and Presence of Threads of Silk on Neostomy. P. Valdoni.—p. 571.

Simple Hypertrophy of Prostate.—Memmi reviews the literature and studies a number of patients with simple hypertrophy of the prostate of which seven had a diffuse form, twenty-six a nodular form, six pure fibromyomatous nodules, seven nodules of pure adenoma and ten adenofibromyomatous nodules with a prevalence of the glandular portion, whereas three had a prevalence of the fibromuscular portion. He describes in detail the histologic elements of the tumors, which prove the importance of the presence of elastic fibers for the recognition of newly formed tissue.

Postoperative Peptic Ulcer and Threads of Silk.—Valdoni observed sixty-one postoperative peptic ulcers, of which six had old silk sutures lying loose at the bottom of the ulcer. The author experimented with eleven dogs to determine the mechanism of penetration of the sutures into the lumen of the neostomy and the alterations secondary to the penetration. A posterior horizontal gastro-enterostomy was performed followed by a pyloric exclusion. Six months after the operation, a piece of suture was found loose in the lumen of the anastomosis in a majority of the cases. Examination of the neostomy demonstrated that the seromuscular suture protruded into the lumen secondarily after necrosis and consequent healing of the corresponding portion of the mucous membrane. The zone immediately surrounding the protruding suture was hyperemic and slightly swollen, and its exit orifice was larger than the suture itself, forming a fistulous tract. A section of the fistulous tract showed a wall of mature sclerotic connective tissue with zones of small round cell infiltration extending toward the periphery, and in some spots concentrated so as to form a small miliary abscess. After due consideration, the author concludes that the frequency

with which sutures are found in the depth of peptic ulcers confirms its importance as the local predisposing cause of a postoperative ulcer.

39: 1497-1532 (Sept. 26) 1932. Practical Section

Urea Clearance as Measure of Renal Function. G. Lazzaro.—p. 1497.
*Case of "Genu Impressum": Roentgenologic Study. V. Romanin.—p. 1502.

Case of "Genu Impressum."—Romanin states that genu impressum was first described by Jansen in 1929 and characterized by (1) a flattening and bending to the right of the knee joint with consequent displacement of the patella up and to the right, away from the patellar surface of the femur, and sometimes accompanied by acute pains following incarceration of the infrapatellar pad of fat, (2) a flattening due to friction and consequent lesions of the superficial strata of the cartilaginous tissue, (3) or in advanced cases a true resistance of the articulation to complete flexion and extension. The author's case is the second on record; it concerns a patient with bilateral injuries of the knee. The author sets forth the hypothesis that there was a secondary bilateral displacement of the patella due to trauma; accordingly, while on the right the displacement, with consequent distention of the inferior patellar ligament, would exist in a latent manner as the result of an old trauma, on the left the actual dislocation would have been produced by the recent trauma with a feeling of internal tearing followed by effusion. The author found no basis for a congenital dislocation of the patella or for a congenital intermittent dislocation of the knee. Roentgen examination revealed a pathologic alteration of the articular surfaces with flattening and deviation to the right. The upper extremity of the tibia was deviated to the right because its condyle presented a pronounced curvature in the posterior part while the anterior part was too concave. The femur was displaced downward and its apophyses were deviated to the right and slightly depressed like the tibial condyles; the patella was displaced to the right, by the bending to the right of the apophysis of the femur, and upward away from the patellar surface of the femur, which was consequently in a lower position. This picture corresponds to Jansen's genu impressum or spurious high patella, as distinguished from true high patella with real lengthening of the lower patellar ligament. The author states in conclusion that roentgen examination is indispensable to the diagnosis of genu impressum.

Archiv für Verdauungs-Krankheiten, Berlin

52: 153-336 (Sept.) 1932. Partial Index

Roentgenologic Observations in Nonorganic Gastric Disturbances. A. Oppenheimer.—p. 153.
Arrangement of Meals in Course of Drinking Cures in Spas. M. I. Pewsner, G. L. Lewin and S. I. Tschetschulin.—p. 162.
*Erythrocyte Sedimentation Speed in Diseases of Stomach. I. Lorié.—p. 171.
Comparative, Experimental and Clinical Investigations on Mode of Action of Several Swelling Substances in Constipation. H. Seel and L. Würzburger.—p. 176.
Improvement of Liver. C. Funck.—p. 191.
Results of Gastrophotography. O. F. Ehrentheil.—p. 206.
*Massage and Its Application in Heart Disease. H. Lampert.—p. 238.
Nitrogen Containing Constituents of Pure Gastric Juice. H. Steinitz.—p. 249.
*Dysentery and Pseudodysentery: Their Alimentary Origin, Their Character as Endogenic Fermentation Toxicoses and Means of Rapid Cure. H. Zade.—p. 254.
Ferments of Duodenal Contents in Disorders of Biliary Tract That Were Treated by Administration of Magnesium Sulphate. A. N. Wolodin.—p. 274.
*Influence of Faradic Current on Secretory and Evacuatory Function of Stomach. A. Kirstner, M. Gorinstein and M. Rudoy.—p. 286.

Erythrocyte Sedimentation Speed in Diseases of Stomach.—Lorié determined the erythrocyte sedimentation speed in 150 patients with various disturbances such as gastric ulcer, duodenal ulcer, gastritis and duodenitis, cancer of the stomach, gastric neuroses, colitis, appendicitis and cholecystitis. The latter two conditions were included in the investigation because cases of this type had been sent to the clinic with the diagnosis gastric ulcer. The author found that in inflammatory processes the sedimentation speed was generally accelerated, the greatest acceleration being observed in cases of cancer of the stomach. Low values of erythrocyte sedimentation speed were observed only in simple ulcers and in neuroses; that is, in conditions in which the inflammatory component either is absent or is of only secondary importance. The author thinks that this contradicts the theory of an inflammatory pathogenesis of gastric ulcer, and he considers an acceleration of the sedimentation speed in cases of ulcer not as a sign of the primary disease but rather as the result of secondary causes. However, in addition to this theoretical interest the sedimentation speed also has practical significance. It is helpful in the differentiation between ulcer and gastritis, also in the prognosis of ulcer, and particularly in the decision as to whether conservative or operative treatment is advisable. Threatening perforation is indicated by a comparatively high sedimentation speed. The author cites cases in which an apparently successful ulcer cure was suddenly followed by a perforation. The sedimentation speed had remained high in those cases. From this the author concludes that with the aid of the sedimentation speed it will be possible to resort to surgical treatment sufficiently early.

Massage and Its Application in Heart Disease.—Lampert first discusses the effect of massage in general; namely, the better blood perfusion of the massaged portions of the body, the influence on the minute volume of the heart, the mechanical stimulation of the arterioles and of the capillaries, and the influence on blood pressure, pulsation, the kidneys and diuresis. He reaches the conclusion that massage exerts a favorable influence on the circulation. He further shows in what circulatory disorders massage is advisable. Because massage attacks the peripheral circulation, it is particularly advisable in disorders in which this circulation fails; namely, in collapse and in collapse-like conditions in patients with valvular defects. In these cases it is necessary to stimulate the flow of the blood to the heart, which can be accomplished by pressure on the veins. Into this group belong the disturbances in the blood distribution, such as occur in some persons in the lower extremities after prolonged standing, or the faulty blood distribution due to disorders in the nervous regulation of the peripheral apparatus, or to incretory disturbances. Massage is likewise helpful in some forms of hypertension, particularly in those instances in which a decompensated valvular defect is combined with peripheral vascular insufficiency. Latent edema is one of the main conditions in which massage should be resorted to, but even in visible edema massage is helpful. However, massage is contraindicated in patients in whom the insufficiency is purely of cardiac origin; also in myocarditis, endocarditis and all inflammatory processes of the skin and of other organs (fever). Under no circumstances should massage be done at the site of inflammation. In discussing the technic of massage, the author emphasizes that massage should never be painful.

Dysentery and Pseudodysentery.—Zade advances the theory that all intestinal disturbances which clinically represent dysentery-like aspects are alimentary endogenic infections of the intestinal tract. He thinks that the many forms of bacteria that have been found in the various dysenteric disorders originate in the ordinary saprophytes of the intestine, particularly of the large intestine; that is, he considers them mutation forms. The various forms of dysentery and pseudodysentery, therefore, should not be separated on the basis of bacteriologic aspects but should be grouped together not only because of clinical similarity but also because they respond to the same alimentary therapy. The author calls attention to the shortcomings of the different therapeutic methods that had been recommended in the past for dysenteric disorders, especially the feeding with gruels or fasting in the form of a tea diet; for even if dysentery is considered as of specific exogenic origin, abnormal fermentation is always present, and materials such as flour would only increase fermentation. Fasting is inadvisable because it is known that dysentery can be caused by starvation. Serotherapy likewise has its shortcomings, for its mortality rate is comparatively high. The author obtained favorable results with a protein diet, which he has employed in dysentery disorders for the last ten years; he never had a fatality. He points out that protein milk proved highly effective in various intestinal disorders of nurslings, but he considers cottage cheese made from skim milk a protein food that is more economical and easier to obtain. In dysentery in adults he found cottage cheese as well as meat helpful. The efficacy of protein therapy he ascribes to the fact that the intestinal putrefaction produced by the protein diet counteracts the intestinal fermentation that is present in dysentery.

Influence of Faradic Current on Function of Stomach.—Kirstner and his associates found that faradization effects an

increase in the gastric secretion in cases with reduced secretory function, produces fluctuations to both sides in normal secretion, and effects a reduction in cases with hypersecretion. The influence of faradization on the evacuation of the stomach is largely the same as that on the secretion, but in a number of cases irregularities and even a dissociation between secretion and evacuation can be noted. In reduced gastric secretion, galvanic and faradic currents act in conformity; that is, they increase the secretion. In cases of normal secretion, however, the two types of current generally produce diverse results. In hypersecretion, faradization generally decreases the secretion whereas galvanization gives no definite results. Decreased evacuatory function of the stomach is increased by the faradic current, and more so by the galvanic current. In cases presenting increased evacuatory function, the results of the two types of current show no regularity.

Beiträge zur Klinik der Tuberkulose, Berlin

80: 403-536 (Aug. 22) 1932

Ventilation, Basal Metabolism and Work Metabolism in Artificial Pneumothorax During Pulmonary Tuberculosis. J. Herms and I. Rütgers. —p. 405.
Unilateral and Bilateral Spontaneous Pneumothorax. Stein and Boedeker. —p. 415.
Mediastinum in Artificial Pneumothorax. E. Hager and F. Langebeckmann.—p. 419.
*Action of Diathermy on Strandlike Pneumothorax Adhesions and on Caverns Held Extended by Strands. H. Wiercinski.—p. 447.
Determination of Number of Bacilli in Suspensions of Tubercle Bacilli. O. Kirchner and B. D. Li.—p. 454.
Necessary Conditions for Culture of Tubercle Bacilli from Blood. O. Kirchner and B. D. Li.—p. 460.
Culture of Tubercle Bacilli from Blood According to Löwenstein in Tuberculosis of Bones. A. Urgoiti.—p. 480.
Culture of Tubercle Bacilli from Blood. K. Harmjanz and T. Kortmann. —p. 484.
Epicutaneous Tuberculin Test and Influence of Thyroxine on Tuberculin Skin Reaction. A. V. von Frisch and F. Nagel.—p. 491.
Animal Experiments on Tuberculosis Problem. K. Preisich.—p. 496.
Course of Chronic Miliary Tuberculosis in Childhood. H. Rennebaum. —p. 500.
Hemorrhagic Predisposition and Hemoptysis in Pulmonary Tuberculosis. E. Essenfeld.—p. 507.
*Changes in Form and Position of Stomach Following Phrenic Exeresis. H. Lichtenstein.—p. 509.
Tuberculosis of Mesenteric Lymph Nodes and Its Complications: Acute Appendicitis and Compression of Choledochus. H. Neuer.—p. 523.
Incidental Pulmonary Observations in Roentgen Examination of Digestive Tract. E. Koppenstein.—p. 532.

Action of Diathermy on Pneumothorax Adhesions.—In summing up his observations, Wiercinski states that by means of diathermy it is possible without intrathoracal manipulations (1) to loosen, atrophy and stretch strandlike pneumothorax adhesions, (2) to shrink and heal caverns held in extension by the strandlike pneumothorax adhesions, and (3) in especially favorable cases to divide strandlike pneumothorax adhesions. The latter effect is rarely produced, and if it does occur it is less due to a direct coagulation of the strand than to tearing of the loosened, atrophied and stretched strand. Even in the case of extremely thin, fibrous strands the current is hardly ever sufficient to effect coagulation, and it is more likely that the skin burns under the electrode than that a strand is coagulated. Thus this method produces results somewhat slower than the intrathoracal division of the strands, but it has the advantage that it is less dangerous.

Form and Position of Stomach Following Phrenic Exeresis.—Lichtenstein emphasizes the value of phrenic exeresis alone or in combination with pneumothorax, and states that exeresis is almost always an irreparable intervention. An unfavorable influence on the function of the respiratory organs or of the heart was not observed by him. The development of intestinal symptoms (gastrocardial syndrome) has been described in the literature, but the author states that grave disorders of this nature were never observed by him. But although the phrenic exeresis does not cause serious functional disorders, it does lead to changes in form and position of the stomach. In left-sided paralysis of the diaphragm there is a shifting to the left and lengthwise placement with abolishment of the ventricular angle and with frequent formation of cascades. In exeresis on the right side the stomach shows a complete transverse placement, the fundus downward, the pylorus upward and the entire stomach displaced to the right. The slight resistance during respiratory elevation of the right paretic diaphragm against the intra-abdominal pressure produces interesting changes in the shape of the stomach during the various respiratory phases. Thus an expiratory fish-hook stomach may become a bull-horn stomach during inspiration. But in spite of the great changes in the shape of the stomach, functional changes were absent. The contraction of the thorax and the relative immobilization of the diseased side of the lung led in many instances to cure of the tuberculosis, and the form anomalies of the stomach are not contraindications to the artificial paralysis of the diaphragm.

Deutsche medizinische Wochenschrift, Leipzig

58: 1431-1470 (Sept. 9) 1932

Operative Therapy of Intestinal Stenosis and Intestinal Occlusion. H. von Haberer.—p. 1431.
Therapeutic Results in Arthritis Deformans Incretoria. Schottmüller. —p. 1436.
Neurotropic Characteristics of Cancer-Producing Agents from Malignant Tumors. E. Fränkel.—p. 1437.
Production of Malignant Tumors by Transmission of Embryonal Tissues. E. Klee-Rawidowicz.—p. 1439.
*Influence of Diathermy of Kidney on Renal Hypertension. Z. Rausch. —p. 1440.
*Criticism of Ether Therapy of Whooping Cough. E. Lorenz.—p. 1443.

Influence of Diathermy of Kidney on Renal Hypertension.—Rausch states that although the use of diathermy in renal diseases is not entirely new, the opinions about its therapeutic value are still divided. In order to determine whether and to what extent hypertension is influenced by applying diathermy to the kidneys, the author made observations on patients with nephrosclerosis and on those with chronic nephritis. In the concluding summary he states that diathermy of the kidneys decreases the blood pressure and improves the clinical symptoms in patients with renal hypertension. The decrease in the hypertension effected by diathermy of the kidneys justifies Koranyi's theory of the pathogenesis of renal hypertension. Today hypertension is generally ascribed to the cardiac activity that adjusts itself to the increased peripheral resistance. The increased resistance is due to a renal as well as to an extrarenal factor. According to Koranyi the extrarenal vasoconstriction is produced by the results of renal ischemia. The collateral vascular constriction, caused by the ischemia, changes the ratio of renal and extrarenal blood perfusion toward the renal, and, when the heart has become adjusted to the increased resistance of the circulation, the collateral vascular constriction corrects more or less the results of the changes in the renal vessels, and the increased cardiac action compensates more or less the general vascular constriction. The renal diathermy influences the factors that actuate this mechanism: the dilatation of the renal vessels counteracts the collateral vasoconstriction, and the heart adjusting itself to the change in the resistance lessens the aortic pressure. In the early stage of renal hypertension the vascular changes are mostly of functional origin, but if the blood pressure increasing factor persists for a longer period, a tissue impairment of the intima is the result. In this later stage the hypertension consists of two components, the obligate one, which is the result of the anatomic changes, and a superimposed one. The latter with its fluctuations causes most of the subjective disturbances, but it is considerably reduced by renal diathermy, whereas the obligate component, that is, the anatomic changes, persists. In chronic nephritis, in which the hypertension is due to an impairment of the renal circulation, the efficacy of renal diathermy is due to the fact that the local acceleration of the circulation reduces the ischemia and thus improves the renal function, which in turn is followed by a reduction of the hypersensitivity of the vasomotor center. At the same time the increased tonus in the consensual vascular regions lessens, which in turn causes the disappearance of the headaches and of the other symptoms.

Criticism of Ether Therapy of Whooping Cough.—Lorenz rejects the intramuscular as well as the rectal ether therapy of whooping cough because he was not able to corroborate the efficacy claimed for it by others. He emphasizes that for the evaluation of whooping cough remedies a careful clinical observation is absolutely necessary. Although the reports of mothers and nurses may be valuable, he thinks that for the evaluation of a new therapy they cannot be considered the main criterion.

Deutsche Zeitschrift für Nervenheilkunde, Berlin

128: 1-124 (Sept. 15) 1932

Gliomas of Cerebral Hemispheres. H. Olivecrona.—p. 1.
Solitary Neuroma of Third Ventricle with Symmetrical Formation of Cysts. H. Heinze.—p. 45.
*Pathogenesis and Therapy of Myasthenia Gravis Pseudoparalytica. L. Remen.—p. 66.
Transitory Apraxia in Tumor of Corpus Callosum. W. Gros.—p. 79.
Investigations on Diastase in Neurosyphilis. A. Marchionini and Berta Ottenstein.—p. 86.
Simulation of Hypophyseal Processes by Hernia of Ventricle. F. W. Ludwig.—p. 103.
Cerebral Injury in Hanging. H. Gerhartz.—p. 109.

Myasthenia Gravis Pseudoparalytica.—Following a review of the various theories on the pathogenesis of myasthenia gravis pseudoparalytica, Remen reports the clinical histories of one patient with myasthenia gravis pseudoparalytica and of two patients with myelosis with myasthenic components. He describes his investigations on the creatine-creatinine metabolism in these patients before and during treatment with glycine or with liver glycine. On the basis of these investigations he concludes that myasthenia, in addition to other factors, is caused by a disturbance in the creatine-creatinine metabolism. By means of glycine or of liver glycine it is possible to lead the disturbed creatine metabolism of patients with myasthenia or with similar disorders again into normal channels. Because of the clinical and subjective improvement of his patients following treatment with liver glycine, the author recommends its use.

Monatsschrift für Kinderheilkunde, Berlin

54: 337-408 (Sept. 8) 1932

Active Immunization Against Diphtheria According to Loewenstein's Method. F. Thoenes.—p. 337.
*Scarlet Fever Susceptibility and Blood Groups. H. Nowak.—p. 343.
Rubella-Glandular Fever Problem. H. Lehndorff.—p. 359.
Idem. E. Glanzmann.—p. 366.
Tissue Chemistry of Nurslings. D. von Móritz and E. Kerpel-Fronius.—p. 371.
Rectally Administered Blood Plasma in Nurslings. E. György.—p. 377.
Sucking Weakness of New-Born and Congenital Diseases of Nervous System. M. Jogichess.—p. 381.
Disorders of Accessory Nasal Cavities During Childhood. J. Stargardter.—p. 391.
Clinical Aspects of Torsion Dystonia (Dystonia Musculorum Deformans Oppenheim). O. Budde.—p. 398.

Scarlet Fever Susceptibility and Blood Groups.—So far as the limited number of the examined children permits conclusions, Nowak's investigations on the predisposition to scarlet fever indicate that the capacity to form immune antibodies is partly determined by the serologic structure of the blood. He admits that persons of all blood groups do contract scarlet fever, but the predisposition does not appear to be the same in all blood groups. Differences in predisposition exist particularly between the groups A and O. In blood group tests on children with scarlet fever and on children that had passed early through an attack of scarlet fever, it was found that in those belonging to blood group A the predisposition is less than in those belonging to blood group O. This observation was corroborated by experiments in active immunization against scarlet fever, the efficacy of which was determined by means of the Dick test. In persons of the blood group O, immunization against scarlet fever is much more difficult than in those of the blood group A. On the basis of the results of three series of tests, the author concludes that the blood group A has constitutionally a lesser predisposition to scarlet fever and that the blood group O has a greater predisposition.

Münchener medizinische Wochenschrift, Munich

79: 1505-1544 (Sept. 16) 1932. Partial Index

*Acute Infectious Intestinal Diseases of Paratyphoid Group. P. Martini.—p. 1505.
Gastro-Enteritis and Its Sequelae. K. Gutzeit.—p. 1510.
*Atrophy of Optic Nerve Following Loss of Blood. A. Milew and A. Pierach.—p. 1515.
Transitory Cerebral Symptoms Resulting from Circulatory Disturbances. F. Hiller.—p. 1516.

Acute Infectious Intestinal Diseases of Paratyphoid Group.—On the basis of observations in the course of an epidemic of acute intestinal disorders, Martini discusses the present status of the paratyphoid group. He calls attention to Schottmüller's first discovery of paratyphoid bacilli and his differentiation between the acid forming paratyphoid A bacillus and the alkali forming paratyphoid B bacillus. He shows how Schottmüller's theories have been modified by the discovery of the bacillus of Breslau and of Gärtner's bacillus. He describes the modes of infection with the various paratyphoid bacilli, together with their symptomatology and therapy. In discussing the treatment he emphasizes the great importance of careful nursing and advises regarding the diet and how to counteract the circulatory disturbances, the fever, intestinal hemorrhages, perforation and meteorism.

Atrophy of Optic Nerve Following Loss of Blood.—Milew and Pierach first review the literature and show that the pathogenesis of this condition is as yet not fully understood. Because the impairment of the optic nerve frequently develops following gastro-intestinal hemorrhages, it has been assumed by some authors that it is the result of an impairment of the detoxicating function of the liver and that consequently the lesion of the optic nerve is caused by toxins. The authors then give the clinical histories in two cases. In both instances the hemorrhage was of gastro-intestinal origin. The visual disturbance developed some time after the hemorrhage, when a regeneration of the blood picture could be assumed. There are also factors indicating that the general condition of the patients was already impaired before the hemorrhage. In the first patient a hemorrhagic diathesis had existed for a long time, but to this was added a second injurious factor in the form of an anaphylactic shock, which developed following a second blood transfusion. However, it is only an assumption and not entirely certain that the anaphylactic shock caused the lesion of the optic nerve. In searching for a toxic injury in the second patient the novasurol injection is thought of, and it is also possible that here the injury of the optic nerve developed through impairment of the liver.

Wiener klinische Wochenschrift, Vienna

45: 1125-1148 (Sept. 16) 1932

Theory of Menstruation. O. O. Fellner.—p. 1125.
Growth Conditions in Mixed Bacterial Cultures. L. Wikullil.—p. 1128.
Central Mechanism of Essential and Arteriosclerotic Hypertension. W. Raab.—p. 1130.
*Results of Experiments on Reflex Anuria. P. Blatt.—p. 1133.
Immunobiology of Cutaneous Tuberculosis. J. Konrad.—p. 1134.
Fate of Persons with Cranial Injuries. A. Pilcz.—p. 1140.
Aspiration Pneumothorax. G. Luzzatto-Fegiz.—p. 1141.
New Methods of Treatment of Gastric Ulcer. K. Glaessner.—p. 1142.

Reflex Anuria.—Blatt states that his studies are of interest for the clinician, since they concern the problem of reflex anuria and oliguria. In summing up the results of his latest investigations he states that he succeeded in demonstrating experimentally what already had been assumed on the basis of the clinical observations; namely, the significance of the ureteral action for the function of the kidney. He was able to show that the manifestations described as renorenal reflexes originate at least partly in the ureter. This had likewise been indicated by clinical observations such as reflex anuria and oliguria, especially after lesions, torsion of pedicle, or incarceration of a ureter. By irritation of one ureter he was able to produce a reflex oliguria or anuria of both kidneys.

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Alimentary Hypoglycemia in Children. E. Lövegren.—p. 583.
*Acute Tuberculous Sepsis. F. Saltzman.—p. 588.
Origin in Inner Ear of Electrical Phenomena Homorhythmic with Acoustic Excitant. F. Leiri.—p. 594.
Case of Cavernous Chylangioma in Uppermost Part of Mesentery of Ileum. S. Alfthan.—p. 613.

Acute Tuberculous Sepsis.—Saltzman has found in the literature seven cases of this disorder, to which he here adds the eighth. The onset was that of a sepsis, with fatal outcome after a short course. The diagnosis was not made until after death, usually after a microscopic examination. Necroses were found in the internal organs, particularly in the lymph glands, spleen and liver. Abundant tubercle bacilli were found in the necrotic foci, which were mostly small and atypical, without notable tissue reaction and particularly without the characteristic structure of tubercles with giant and epithelioid cells. No old tuberculous processes nor any portal of entry for exogenous infection could be seen.